BOSTON UNIVERSITY

Boston University Metropolitan College
Department of Computer Science

Undergraduate and
Graduate Programs in

Computer Science & Information Technology

Change your perspective—the sky is the limit.

INFORMATION SECURITY PROGRAMS AT METROPOLITAN COLLEGE ARE CERTIFIED BY THE COMMITTEE ON NATIONAL SECURITY SYSTEMS (CNSS).

OUR PROGRAMS ARE NATIONALLY ACCREDITED BY THE PROJECT MANAGEMENT INSTITUTE GLOBAL ACCREDITATION CENTER FOR PORJECT MANAGEMENT EDUCATION PROGRAMS (GAC)

Contents

BOSTON
UNIVERSITY

Welcome to the Department of Computer Science!

With continuous advances in information technology, multidisciplinary knowledge and lifelong learning remain an absolute necessity for IT professionals. For students dedicated to ongoing academic development in computer science and information systems, Boston University's Metropolitan College (MET) is the first choice for scope of research and breadth of educational programs.

Established more than thirty years ago, MET's Computer Science department remains a leader in a number of state-of- the-art IT areas, such as information security, computer networks, computer information systems, financial informatics, digital forensics, and health informatics. A regional and national leader in information security education for almost a decade, our curriculum is certified by the Committee on National Security Systems (CNSS).

Our world-class IT programs are driven by exceptional faculty whose scholarly accomplishments and unique industry experience place them among the top in their field. Adhering to the highest academic standards of BU, these dedicated scholars are involved in research projects in areas such as novel Internet architectures, smartphone applications, information assurance, and biomedical informatics.

Most importantly, our professors are fully engaged with their students, following their progress, maintaining awareness of what's going on in their lives and careers, and providing the support they need. An academic advisor is available to help students make the best decisions about classes.

Our part-time and online study options offer convenient times, locations, and delivery methods, ensuring that dedicated professionals have the opportunity to experience a rigorous academic environment while pursuing full-time careers. At the same time, we remain the first choice for a number of international students interested in the BU experience, and in continuing their academic development in computer science and information technology.

The broad range of backgrounds, interests, and experiences that characterizes the Metropolitan College student body is integral to our programs. Students and faculty alike are rewarded by the exchange of ideas and full participation in learning—and to us that is extremely important and valuable. By graduation, our students have the ability to analyze problems more efficiently, and they have a prestigious credential from Boston University—their key to the doors of academia and careers in the industry.

I invite you to join us in navigating the changing landscape of modern information technology—certainly the most exciting and invigorating discipline in which to study, explore, and work.

Anatoly Temkin, PhD
Chair and Assistant Professor

Why study IT at BU?

Metropolitan College's computer science department was the first of its kind at Boston University.

When you study with us, you get top-quality faculty with measurable achievements in their fields.

Meet Our Administrative Staff

Left to right: Kim Richards, program coordinator, Camille Kardoose, program administrator; and Alexa Muhs, online program coordinator.

Established in 1839, Boston University today is internationally recognized as a top institution of higher learning and research. In 2012-2013, the University placed 54th out of 400 universities worldwide, according to the *Times Higher Education* "World University Rankings."

As the fourth-largest private university in the nation and a leader in research, BU offers incomparable campus resources and superb faculty. Just a few distinctions: BU was the first university to open all its divisions to women; BU professor Alexander Graham Bell invented the telephone in one of our classrooms; and Nobel Peace Prize-winner Dr. Martin Luther King Jr. received his doctorate here. Today, many award-winning professors continue to distinguish the University internationally.

Boston University's Metropolitan College

As one of Boston University's 16 degree-granting schools and colleges, Metropolitan College offers over sixty undergraduate and graduate degrees and certificates. The College's convenient evening, online, and blended programs are ideal for working professionals and nontraditional students of all ages.

More Than Thirty Years of Innovation

Established in 1979, the Department of Computer Science at Metropolitan College is the longest-running computer science department at Boston University. Over its three decades, the department has played an important role in the emergence of IT at the University and throughout the region, having educated a significant portion of the workforce in a sector that revitalized New England. Today, Metropolitan College offers one of the most extensive IT programs available, taught by top-quality faculty with measurable achievements in their fields.

The future of information technology is full of possibility for those with quality credentials in the field. The Computer Science department prepares graduates for successful technology careers in a diverse range of industries.

A National Center of Academic Excellence

The Computer Science department's degree programs are certified by the Committee on National Security Systems (CNSS)—the MS in Computer Information Systems has additional accreditation from the Project Management Institute (PMI). Boston University is designated a National Center of Academic Excellence in Information Assurance Education and Research by the National Security Agency and Department of Homeland Security.

Faculty and Advising

Metropolitan College's computer science faculty includes full-time BU professors as well as industry leaders with invaluable professional insight and connections. Drawing from years of research experience and hands-on programming expertise, our faculty teach the latest technologies within the framework of ideas, concepts, and methods that drive innovation. Instruction emphasizes technical skills, research, and theoretical knowledge—as well as strong communication abilities—as key to remaining at the forefront of the rapidly developing information technology field.

The Department of Computer Science offers the benefit of graduate advising to help you select the subjects and schedule best suited to your individual needs and interests. In addition, undergraduate students have full access to the academic counselors in Metropolitan College's Undergraduate Student Services office.

Flexibility and Choice: On-Campus, Online, and Blended Programs

We understand the challenges of balancing a career, a home life, and an education. At Boston University's Metropolitan College, your academic goals are attainable. We offer a variety of flexible formats to provide opportunities for adults who might not otherwise be able to participate in learning at the University. Available formats are stated in each program's description.

On Campus

All Metropolitan College IT programs meet on the Boston University campus during convenient evening hours. Students are free to take advantage of the University's libraries, Fitness & Recreation Center, and other campus resources. Boston University's North Campus–Chelmsford offers an evening master's in Computer Science in the high-tech corridor north of Boston, cutting down commute times for those who live or work in that region. See page 21 for details.

Online

When you study online, you have the ability to tap into an exciting learning network—and dialogue—at any time. Boston University's online students learn from the same world-class faculty as those on campus, ensuring high-quality education and rigorous academic standards. The Computer Science department offers a variety of online learning opportunities that bring cutting-edge, interactive instruction to students around the world:

- Master of Science in Computer Information Systems
  - Computer Networks concentration
  - Database Management & Business Intelligence concentration
  - Health Informatics concentration
  - IT Project Management concentration
  - Security concentration
  - Web Application Development concentration
- Graduate Certificate in Advanced Information Technology
- Graduate Certificate in Computer Networks
- Graduate Certificate in Database Management & Business Intelligence
- Graduate Certificate in Health Informatics
- Graduate Certificate in Information Security
- Graduate Certificate in Information Technology
- Graduate Certificate in IT Project Management
- Graduate Certificate in Web Application Development

Visit **bu.edu/online** for more information.

Blended (eLive)

Discover the flexibility of Metropolitan College's blended, eLive programs. eLive combines the best elements of online learning with the face-to-face interactivity of the classroom. eLive courses meet on campus four Saturdays or weeknights per semester. The remaining coursework is completed in interactive, online sessions.

The Department of Computer Science offers the following blended programs:

- Master of Science in Computer Information Systems
  - Database Management & Business Intelligence concentration
  - IT Project Management concentration
  - Security concentration
- Graduate Certificate in Advanced Information Technology
- Graduate Certificate in Database Management & Business Intelligence
- Graduate Certificate in Digital Forensics
- Graduate Certificate in Information Security
- Graduate Certificate in Information Technology
- Graduate Certificate in IT Project Management

Visit bu.edu/met/eLive for more information.

Student Life at Metropolitan College: An International Portrait

Metropolitan College provides educational opportunities for students of all backgrounds and nationalities. Thanks to conveniently scheduled classes, innovative programs, and Boston University's international reputation for excellence, students and working professionals from the U.S. and more than one hundred thirty-fivecountries study side-by-side. In fact, there are over six thousand international students at the University, ensuring that the exchange of ideas in the classroom is rooted in a diverse range of cultural and social experiences—and the content of every class is enriched by each student's life history, academic training, or professional qualifications.

Metropolitan College students have full access to the breadth of intellectual, social, and professional resources of the University—including 24 libraries, the 270,000-square-foot Fitness & Recreation Center, the George Sherman Union student center, numerous dining halls, and dozens of academic and social clubs and organizations.

Boston is easy to explore on foot or by public transportation. Museums, theatres, galleries, shopping districts, and major universities are all within walking distance of Boston University.

Living in Boston

Students come from all over the world to study in Boston. Combining international flair with a distinctly American flavor, Boston is an academic center, a thriving business and technology capital, a historical treasure trove, and home to an array of cultural institutions. And Boston University is situated right in the heart of it all.

From modern skyscrapers to cobblestone streets, to famous parks such as the Public Garden and the Boston Common, Boston offers a wide variety of cultural and recreational opportunities.

Each neighborhood in Boston has a distinct personality, from the bustle of Chinatown or the European charm of the North End to the stately avenues of Back Bay and the lively atmosphere of Cambridge's Harvard Square.

Boston is easy to explore on foot or by public transportation. Museums, theatres, galleries, shopping districts, and major universities are all within walking distance of Boston University. Local restaurants offer authentic cuisine from around the globe, and there are plenty of choices when it comes to nightlife.

Undergraduate Programs

Undergraduate programs in IT are designed to prepare students for technically demanding careers as well as continued studies at the graduate level.

Bachelor of Science in Computer Science

- Standard evening format
- Accelerated evening/weekend format

By providing a solid foundation in the liberal arts and sciences, along with focused exploration of the various disciplines of information technology, the bachelor's in Computer Science prepares students for rewarding, cuttingedge careers in software engineering, system administration and management, and research and development in industrial and governmental laboratories. Graduates also use their undergraduate computer science background (and analytical skills) to prepare for careers in medicine, law, education, physical and life sciences, social sciences, and the humanities.

By examining the latest industry tools and techniques, and developing valuable experience and professional skills in areas such as object-oriented programming and C++, students are equipped with in-depth understanding of their chosen professions—and are prepared to continue into a graduate degree or certificate program.

Degree Requirements

A total of 128 credits is required, divided into three areas of study: distribution courses, specialization and related requirements, and electives.

Distribution Courses

A total of twelve courses (48 credits) is required.

English

- **MET EN 104** English Composition
- **MET EN 201** Intermediate Composition

Mathematics

- **CAS MA 118** is recommended for students unprepared for calculus

Natural Science

- Eight credits in the natural sciences (N)

Literature

- Four credits in a 100- or 200-level MET EN literature course or MET HU 221

Philosophy

- Four credits

History

- Four credits

Did you know?

A bachelor's in computer science opens the door to careers in software engineering, system administration and management, and research and development in industrial and governmental laboratories—and provides good preparation for careers in medicine, law, education, physical and life sciences, social sciences, and the humanities.

Additional Courses

- Four credits in the humanities (H)
- Four credits in the social sciences (S)
- Four credits in the humanities (H), natural sciences (N), or social sciences (S)
- Four credits in the humanities (H) or social sciences (S)

Specialization and Related Courses

Twelve courses (48 credits) completed with a grade of C or higher are required, as follows:

MET CS 231 Programming with C++ *and*
MET CS 341 Data Structures with C++ *or*
MET CS 232 Programming with Java *and*
MET CS 342 Data Structures with Java

Plus:

MET CS 248 Discrete Mathematics
MET CS 472 Computer Architecture
MET CS 503 Windows .NET Application Programming with C# *or*
MET CS 565 Advanced Java Programming
MET CS 535 Computer Networks *or*
MET CS 579 Database Management
MET CS 575 Operating Systems

Students *with* prior programming experience must also complete five additional computer science courses at the **300** to **599** level, selected with the advice and approval of an advisor.

Students *without* prior programming experience must also complete **MET CS 201** Introduction to Programming and four additional computer science courses at the **300** to **599** level, selected with the advice and approval of an advisor.

Mathematics Requirement

A total of three courses (12 credits):

MET MA 123 Calculus I
MET MA 124 Calculus II

Plus one mathematics course (4 credits) selected from the following:

MET MA 213 Basic Statistics and Probability
MET MA 214 Applied Statistics
MET MA 225 Multivariate Calculus
CAS MA 226 Differential Equations
CAS MA 242 Linear Algebra

Electives

At least five courses, with three selected from the humanities (H), natural sciences (N), or social sciences (S), and two others from non-computer science courses.

Accelerated Degree Completion Program—Computer Science Major

Boston University offers the opportunity to complete a bachelor's in Computer Science in just two years. If you have earned 64 or more transferable college semester credits (including courses in English composition and math) and have at least five years of work experience, this program may be ideal for you.

The Accelerated Degree Completion Program (ADCP) follows a cohort format, with classes meeting on weekday evenings and alternate Saturdays, as well as online and in blended formats. This program provides a comprehensive foundation in the liberal arts and sciences, along with focused exploration of the various disciplines of information technology and the latest industry tools and techniques.

The ADCP is uniquely designed to match the energy and talents of individuals who have risen in their profession without having completed their bachelor's degree. Culminating in a Bachelor of Science in Computer Science, the ADCP enables motivated professionals to study with others of the same energy level and dedication, who seek the satisfaction and added professional distinction of earning a bachelor's degree. Students who finish the program with a cumulative GPA of 3.0 are guaranteed admission to a MET graduate degree program in Computer Science, with advanced standing.

Degree Requirements

A total of 64 credits is required.

Liberal Arts

(Five courses/20 credits)

MET IS 400 Great Ideas in Western Thought
MET IS 401 Communication Skills 1
MET IS 402 Communication Skills 2
MET IS 403 Natural Science in Contemporary Society

Plus:

One elective in the humanities

Computer Science Core

(Eleven courses/44 credits)

MET CS 232 Programming with Java
MET CS 248 Discrete Mathematics
MET CS 342 Data Structures with Java
MET CS 401 Introduction to Web Application Development
MET CS 472 Computer Architecture
MET CS 495 Computer Science Senior Project
MET CS 503 Windows.NET Application Programming with C#
MET CS 535 Computer Networks
MET CS 565 Advanced Java Programming
MET CS 575 Operating Systems*
MET CS 579 Database Management*

**May be applied toward the MS in Computer Science*

Perumal Appavuchetty
Team Lead/Principal Software Engineer
Cross Country Automotive Services (CCAS)
MS Computer Science ('09)

"All the professors I studied with are very knowledgeable. They brought a high level of expertise and experience to each course I took. They are very understanding of working adults like me, who are balancing a career with their studies, but on the other hand, they do not compromise the quality of instruction. They expect us to work hard, and they assign the exact amount of homework necessary to develop an understanding of the principles."

Certificate in Computer Science

Certificate in Computer Science
There is significant demand for specialists in C++ and Java software development. This certificate in Computer Science provides students with the skills necessary to become part of a C++ or Java development team. Graduates of the program also acquire the background required to enter the software engineering certificate program and the Master of Science in Computer Science degree program.

Academic credits earned toward the Certificate in Computer Science may be transferred to any bachelor's degree program.

Curriculum

Prerequisites

MET CS 201 Introduction to Programming

Certificate Requirements

(Four courses/16 credits)

MET CS 231 Programming with C++ *or*
MET CS 232 Programming with Java
MET CS 248 Discrete Mathematics
MET CS 341 Data Structures with C++ *or*
MET CS 342 Data Structures with Java
MET CS 472 Computer Architecture

Graduate Degree Programs

Graduate programs in IT provide the advanced, in-depth education needed for the best careers in the field. The master's programs in Computer Science, Computer Information Systems, and Telecommunication each offer one or more concentration options. For those who seek specialized, industry-specific knowledge at an advanced level, but prefer not to commit to a full master's program, the department offers a variety of four-course IT certificates.

Master of Science in Computer Information Systems (MSCIS)

Designed for those who wish to combine technical competence in information systems with knowledge of managerial and organizational issues, the MS in Computer Information Systems prepares students for careers as information security analysts, systems analysts, and information system leaders.

The MSCIS has been accredited by the Project Management Institute Global Accreditation Center for Project Management Education Programs (GAC).

Optional Concentrations

- Computer Networks
- Database Management & Business Intelligence
- Health Informatics
- IT Project Management
- Security
- Web Application Development

Program Prerequisites

Applicants to the program are required to have a bachelor's degree from a regionally accredited institution and proficiency in the following areas:

MET CS 201 Introduction to Programming
MET CS 231 Programming with C++ *or*
MET CS 232 Programming with Java

If college-level credit courses are not in evidence, the department will determine what prerequisite courses must be completed in addition to graduate degree requirements. Students claiming equivalent proficiency in the prerequisite courses from non-academic sources must take an examination to demonstrate such proficiency.

A maximum of two graduate-level courses (eight credits) taken at Metropolitan College before acceptance into the program may be applied toward the degree.

Degree Requirements

A total of ten courses (40 credits) is required to obtain the MSICS.

Core Curriculum
(Six courses/24 credits)

MET CS 520 Information Structures *or*
MET CS 601 Web Application Development

Did you know?

According to the Bureau of Labor Statistics, employment of computer and information systems managers is expected to grow 16 percent through 2016, which is faster than average growth compared to all occupations.

MET CS 546 Quantitative Methods for Information Systems
MET CS 625 Business Data Communication and Networks
MET CS 669 Database Design and Implementation for Business
MET CS 682 Information Systems Analysis and Design
MET CS 782 IT Strategy and Management

Electives

(Four courses/16 credits)
Students who are **not** pursuing a concentration must select four elective courses. At least three must be at the 600 level or above. Visit **bu.edu/met/cs** for current eligible offerings.

Master's Thesis Option in Computer Information Systems

(8 credits)
Students majoring in Computer Information Systems may elect a thesis option, to be completed within twelve months. This option is available to MSCIS candidates who have completed at least seven courses toward their degree and have a GPA of 3.7 or higher. Students are responsible for finding a thesis advisor and a principal reader within the department. The advisor must be a full-time faculty member; the principal reader may be part-time faculty with a PhD (unless waived by department).

MET CS 810/811 Master's Thesis

Concentration in Computer Networks

The concentration in Computer Networks provides students with a broad foundation in information technology (IT) and an in-depth understanding of computer data communication and modern networking. The six MSCIS core courses include a comprehensive introductory networking course that covers digital communications, local area, wide area, wireless, and other network technologies. The Computer Networks concentration courses provide students with a comprehensive understanding of network design and implementation, network performance analysis and management, network security, and the latest networking technology. The program is designed to empower students with extensive knowledge and hands-on experience to analyze, design, procure, manage, and implement cutting-edge computer networking solutions and technologies.

In addition to the MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Computer Networks must also satisfy the following requirements:

Required Computer Networks Courses

(Four courses/16 credits)
MET CS 635 Network Design and Implementation
MET CS 690 Network Security
MET CS 695 Enterprise Information Security
MET CS 775 Advanced Networking

Concentration in Database Management & Business Intelligence

The concentration in Database Management & Business Intelligence equips students with the tools necessary to utilize the vast amounts of information provided by large amounts of data. By focusing on the integration of information technology with business problems and opportunities, this concentration enables information systems professionals to understand technological issues in addition to business concepts and fundamentals.

A path to the Master of Science in Computer Information Systems:

In addition to the MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Database Management & Business Intelligence must also satisfy the following requirements:

Required Database Management & Business Intelligence Courses

(Two courses/8 credits)

MET CS 699 Data Mining and Business Intelligence
MET CS 779 Advanced Database Management

Electives

(Two courses/8 credits)

Database Management & Business Intelligence Electives

Choose at least one course from the following:

MET CS 674 Database Security
MET CS 689 Designing and Implementing a Data Warehouse
MET CS 780 Database Administration

General Electives

Select no more than one general elective. Visit bu.edu/met/cs for current eligible offerings.

Concentration in Health Informatics

The objective of this concentration is to expose students to modern health information technology, including health data collection, processing, and storage. The primary focus of this program is on electronic medical data generated and stored in health care and public health organizations. Individuals graduating from this program will have a solid knowledge of health information technology and systems and electronic health records, as well as a solid exposure to the latest medical technologies.

In addition to the MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Health Informatics must also satisfy the following requirements:

Required Health Informatics Courses

(Four courses/16 credits)

MET CS 570 Biomedical Sciences and Health IT
MET CS 580 Health Informatics
MET CS 581 Electronic Health Records
MET CS 781 Advanced Health Informatics

A path to the Master of Science in Computer Information Systems with a Concentration:

Concentration in IT Project Management

Especially valuable for those engaged in the administration of technical projects, the concentration in IT Project Management introduces general concepts embodied in the Project Management Institute's PMBOK®, while exploring specialized techniques for software risk management, software cost estimation, and software quality management. Students also learn virtual project management, enabling them to manage geographically distributed software development. Students taking any course in this concentration are eligible to take a PMP® exam preparation course for free—an important step toward certification as a Project Management Professional.

In addition to the MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in IT Project Management must also satisfy the following requirements:

Required IT Project Management Courses

(Three courses/12 credits)

MET CS 632 IT Project Management
MET CS 633 Distributed Software Development and Management
MET CS 783 Enterprise Architecture

Electives

(One course/4 credits)
Select no more than one general elective. Visit **bu.edu/met/cs** for current eligible offerings.

Concentration in Security

The concentration in Security provides in-depth knowledge of emerging security threats and solutions, in order to prepare technical leaders to identify, develop, and implement highly secure systems and networks that support organizational goals.

In addition to the MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Security must also satisfy the following requirements:

Required Security Courses

(Three courses/12 credits)

MET CS 674 Database Security *or*
MET CS 693 Digital Forensics and Investigations
MET CS 684 IT Security Policies and Procedures
MET CS 695 Enterprise Information Security

Electives

(Two courses/8 credits)
Choose two of the following courses:

MET CS 599 Biometrics
MET CS 690 Network Security
MET CS 703 Network Forensics
MET CS 713 Advanced Digital Forensics
MET CS 789 Cryptography
MET CS 799 Advanced Cryptography

Concentration in Web Application Development

The concentration in Web Application Development provides fundamental concepts to develop web applications. The courses offer comprehensive coverage of both client-side and server-side development. The latest topics in PHP, .NET (C# 3.0, ASP.NET 3.5, ADO, NET, L1NQ, WCF, and WPF), and Enterprise Java (Servlets, JSP, Hibernate, Spring, and EJBs) are widely covered. Students will also learn and work with cutting-edge technologies such as Ruby on Rails, AJAX, Flex, and Google Web Toolkit (GWT). Students will be creating real-world web application projects that will also involve interacting with databases such as Oracle, MySQL, and SQLSERVER.

In addition to the MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Web Application Development must also satisfy the following requirements:

Dual Degree Option

Appreciating the converging nature of management skills and technology, the Computer Science department has a special relationship with Metropolitan College's Administrative Sciences and Actuarial Science departments. Students in either program are able to use 8 credits from one degree toward a second degree, thereby reducing their work on the second degree by two courses. Students must be accepted independently by both departments, but they may request that application materials, such as references and transcripts, be forwarded from the first program to the second.

Required Web Application Development Courses

(Two courses/8 credits)

MET CS 601 Web Application Development*
MET CS 701 Rich Internet Application Development

Electives

(Two courses/8 credits)
Two courses selected from the following:

MET CS 632 IT Project Management
MET CS 633 Distributed Software Development and Management
MET CS 651 Web Development with .NET
MET CS 667 Enterprise Java
MET CS 783 Enterprise Architecture

**MET CS 601 may not be taken as an MSCIS core course and a concentration requirement. Students concentrating in Web Application Development must take MET CS 520 Information Structures as a core course.*

Master of Science in Computer

Information Systems (blended)

The blended-format MSCIS program is designed for those who wish to combine technical competence in information systems with knowledge of managerial and organizational issues. The blended format, known as "eLive," embraces the traditional values of face-to-face teaching while integrating the best practices of online learning. Over the course of a semester, blended-format courses meet four evenings on campus and include ongoing, online student-to-student and student-to-faculty collaboration. While the flexible schedule accommodates the needs of busy professionals, the blended format also provides the perfect framework upon which to build a solid academic foundation, important practical skills, and critical business competencies. Each course is designed to create opportunities and experiences which encourage student motivation, curiosity, and self-confidence, helping to develop both independent and collaborative learning abilities that will prove beneficial to any professional.

The blended MSCIS is accredited by the Project Management Institute Global Accreditation Center for Project Management Education Programs (GAC).

Prerequisites

MET CS 201 Introduction to Programming
MET CS 231 Introduction to Computer Science Programmers with C++ *or*
MET CS 232 Introduction to Computer Science with Java

If college-level credit courses are not in evidence, the department will determine what prerequisite courses must be completed in addition to graduate degree requirements. Students claiming equivalent proficiency in the prerequisite courses from non-academic sources must take an examination to demonstrate such proficiency.

Optional Concentrations

- Database Management & Business Intelligence
- IT Project Management
- Security

Degree Requirements

A total of ten courses is required to obtain the blended MSCIS:

Core Curriculum

(Six courses/24 credits)

MET CS 520 Information Structures *or*
MET CS 601 Web Application Development
MET CS 546 Quantitative Methods for Information Systems
MET CS 625 Business Data Communication and Networks
MET CS 669 Database Design and Implementation for Business
MET CS 682 Information Systems Analysis and Design
MET CS 782 IT Strategy and Management

General Electives

(Four courses/16 credits)

Students who are not pursuing a concentration must select four elective courses. At least three must be at the 600 level or above. Visit **bu.edu/met/cs** for current eligible offerings.

Concentration in Database Management & Business Intelligence

The concentration in Database Management & Business Intelligence equips students with the tools necessary to utilize the vast amounts of information provided by large amounts of data. By focusing on the integration of information technology with business problems and opportunities, this concentration enables information systems professionals to understand technological issues in addition to business concepts and fundamentals.

In addition to the blended MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Database Management & Business Intelligence must also satisfy the following requirements:

Required Database Management & Business Intelligence Courses

(Three courses/12 credits)

MET CS 674 Database Security
MET CS 699 Data Mining and Business Intelligence
MET CS 779 Advanced Database Management

Electives

(One course/4 credits)

Select no more than one general elective. Visit **bu.edu/met/cs** for current eligible offerings.

Vijay Kanabar *PhD, PMP®*
Associate Professor of Computer Science
and Administrative Sciences
Director of Project Management Programs

"Today, software development is a very complex activity—and when projects fail it is usually because basic communication plans don't exist. We are unique in that our department offers two courses that are dedicated to project communications—IT Project Management and Distributed Software Development and Management.

"In my courses, I make sure students develop the good communication skills to help them survive in the field. They need to know the answers to the following: what, why, to whom, and how is information being communicated? Those in the IT field can no longer afford to work in isolation, so I encourage all of my students to break out of that and get very good at communicating either face-to-face or virtually.

"Another thing that sets us apart is our faculty and students. We have dedicated program faculty who focus on students who are often working professionals. We are available to them all of the time. And our students really take the time to assist each other. For instance, one of our students helped four others get jobs at his company. That gives you a sense of the passion and support that our students have for each other—and we share that with them. But most of all, it's a fun learning environment, and students don't even know three hours have gone by. Time flies when you're having fun."

Concentration in IT Project Management

Especially valuable for those engaged in the administration of technical projects, the concentration in IT Project Management introduces general concepts embodied in the Project Management Institute's PMBOK®, while exploring specialized techniques for software risk management, software cost estimation, and software quality management. Students also learn virtual project management, enabling them to manage geographically distributed software development. Students taking any course in this concentration are eligible to take a PMP® exam preparation course for free—an important step toward certification as a Project Management Professional.

In addition to the blended MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in IT Project Management must also satisfy the following requirements:

Required IT Project Management Courses

(Two courses/8 credits)

MET CS 632 IT Project Management
MET CS 633 Distributed Software Development and Management

Electives

(Two courses/8 credits)
Select two general electives.
Visit bu.edu/met/cs for current eligible offerings.

Concentration in Security

The concentration in Security provides in-depth knowledge of emerging security threats and solutions, in order to prepare technical leaders to identify, develop, and implement highly secure systems and networks that support organizational goals.

In addition to the blended MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Security must also satisfy the following requirements:

Required Security Courses
(Four courses/16 credits)
- **MET CS 674** Database Security *or* **MET CS 693** Digital Forensics and Investigations
- **MET CS 684** IT Security Policies and Procedures
- **MET CS 695** Enterprise Information Security
- **MET CS 703** Network Forensics or **MET CS 713** Advanced Digital Forensics

Master of Science in Computer Information Systems (online)

The online Master of Science in Computer Information Systems (MSCIS) is designed for working professionals in the IT field. The program will capitalize on students' experience by offering specialized training in management, preparing graduates for managerial positions within the computer science or information systems fields.

The online MSCIS is accredited by the Project Management Institute Global Accreditation Center for Project Management Education Programs (GAC).

Optional Concentrations

- Computer Networks (anticipated)
- Database Management & Business Intelligence
- Health Informatics
- IT Project Management
- Security
- Web Application Development

Degree Requirements

A total of ten courses (40 credits) is required to obtain the online MSCIS:

Core Curriculum
(Six courses/24 credits)
- **MET CS 520** Information Structures *or* **MET CS 601** Web Application Development
- **MET CS 546** Quantitative Methods for Information Systems
- **MET CS 625** Business Data Communication and Networks
- **MET CS 669** Database Design and Implementation for Business
- **MET CS 682** Information Systems Analysis and Design
- **MET CS 782** IT Strategy and Management

Students who are **not** pursuing a concentration must also select four courses (16 credits) from the following:
- **MET CS 601** Web Application Development*
- **MET CS 632** IT Project Management
- **MET CS 633** Distributed Software Development and Management
- **MET CS 674** Database Security
- **MET CS 684** IT Security Policies and Procedures
- **MET CS 693** Digital Forensics and Investigations
- **MET CS 695** Enterprise Information Security
- **MET CS 699** Data Mining and Business Intelligence
- **MET CS 701** Rich Internet Application Development
- **MET CS 779** Advanced Database Management
- **MET CS 783** Enterprise Architecture

Concentration in Computer Networks

The concentration in Computer Networks provides students with a broad foundation in information technology (IT) and an indepth understanding of computer data communication and modern networking. The six MSCIS core courses include a comprehensive introductory networking course that covers digital communications, local area, wide area, wireless, and other network technologies. The Computer Networks concentration courses provide students with a comprehensive understanding of network design and implementation, network performance analysis and management, network security, and the latest networking technology. The program is designed to empower students with extensive knowledge and hands-on experience to analyze, design, procure, manage, and implement cutting-edge computer networking solutions and technologies.

In addition to the online MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Computer Networks must also satisfy the following requirements:

Required Computer Networks Courses
(Four courses/16 credits)
- **MET CS 635** Network Design and Implementation
- **MET CS 685** Network Design and Management
- **MET CS 690** Network Security
- **MET CS 695** Enterprise Information Security

**MET CS 601 Web Application Development can only apply as an elective if not taken as an MSCIS core course. In order to choose MET CS 601 as an elective, students must opt for MET CS 520 Information Structures as a core course.*

Did you know?

BU received the 2011 U.S. Distance Learning Association (USDLA) Award for 21st Century Best Practices and the 2010 Sloan Consortium Award for Excellence in Institution-Wide Online Education.

Concentration in Database Management & Business Intelligence

The concentration in Database Management & Business Intelligence equips students with the tools necessary to utilize the vast amounts of information provided by large amounts of data. By focusing on the integration of information technology with business problems and opportunities, this concentration enables information systems professionals to understand technological issues in addition to business concepts and fundamentals.

In addition to the online MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Database Management & Business Intelligence must also satisfy the following requirements:

Required Database Management & Business

Intelligence Courses
(Four courses/16 credits)

- **MET CS 674** Database Security
- **MET CS 699** Data Mining and Business Intelligence
- **MET CS 779** Advanced Database Management

And one course from the following:

- **MET CS 570** Biomedical Science and Health IT
- **MET CS 580** Health Informatics
- **MET CS 581** Electronic Health Records
- **MET CS 601** Web Application Development*
- **MET CS 632** IT Project Management
- **MET CS 633** Distributed Software Development and Management
- **MET CS 684** IT Security Policies and Procedures
- **MET CS 693** Digital Forensics and Investigations
- **MET CS 695** Enterprise Information Security
- **MET CS 701** Rich Internet Application Development
- **MET CS 781** Advanced Health Informatics
- **MET CS 783** Enterprise Architecture

Concentration in Health Informatics

The objective of this concentration is to expose students to modern health information technology, including health data collection, processing, and storage. The primary focus of this program is on electronic medical data generated and stored in health care and public health organizations. Individuals graduating from this program will have a solid knowledge of health information technology and systems and electronic health records, as well as a solid exposure to the latest medical technologies.

In addition to the online MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Health Informatics must also satisfy the following requirements:

Required Health Informatics Courses

(Four courses/16 credits)

- **MET CS 570** Biomedical Sciences and Health IT
- **MET CS 580** Health Informatics
- **MET CS 581** Electronic Health Records
- **MET CS 781** Advanced Health Informatics

Concentration in IT Project Management

Especially valuable for those engaged in the administration of technical projects, the concentration in IT Project Management introduces general concepts embodied in the Project Management Institute's PMBOK®, while exploring specialized techniques for software risk management, software cost estimation, and software quality management. Students also learn virtual project management, enabling them to manage geographically distributed software development. Students taking any course in this concentration are eligible to take a PMP® exam preparation course for free—an important step toward certification as a Project Management Professional.

In addition to the online MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in IT Project Management must also satisfy the following requirements:

Required IT Project Management Courses

(Four courses/16 credits)

- **MET CS 632** IT Project Management
- **MET CS 633** Distributed Software Development and Management
- **MET CS 783** Enterprise Architecture

And one course from the following:

- **MET CS 601** Web Application Development*
- **MET CS 674** Database Security
- **MET CS 684** IT Security Policies and Procedures
- **MET CS 693** Digital Forensics and Investigations
- **MET CS 695** Enterprise Information Security
- **MET CS 699** Data Mining and Business Intelligence
- **MET CS 701** Rich Internet Application Development
- **MET CS 703** Network Forensics
- **MET CS 779** Advanced Database Management

Did you know?

A 2012 survey by the College of Health Information Management Executives (CHIME) showed that 67 percent of healthcare CIOs are experiencing IT staff shortages, up from 59 percent in 2010.

Concentration in Security

The concentration in Security provides in-depth knowledge of emerging security threats and solutions, in order to prepare technical leaders to identify, develop, and implement highly secure systems and networks that support organizational goals.

In addition to the online MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Security must also satisfy the following requirements:

Required Security Courses

(Four courses/16 credits)

MET CS 684 IT Security Policies and Procedures
MET CS 695 Enterprise Information Security

Plus one or two courses from the following:

MET CS 674 Database Security
MET CS 693 Digital Forensics and Investigations

And no more than one course from the following:

MET CS 601 Web Application Development*
MET CS 632 IT Project Management
MET CS 633 Distributed Software Development and Management
MET CS 699 Data Mining and Business Intelligence
MET CS 701 Rich Internet Application Development
MET CS 779 Advanced Database Management
MET CS 783 Enterprise Architecture

**MET CS 601 Web Application Development can only apply as an elective if not taken as an MSCIS core course. In order to choose MET CS 601 as an elective, students must opt for MET CS 520 Information Structures as a core course.*

Robert Schudy *PhD*
Associate Professor of Computer Science
Director, online MS in
Computer Information Systems

"Metropolitan College's business is to teach working professionals and help them advance their careers. The Department of Computer Science combines a strong academic program with very useful, hands-on coursework that students can use both today and in their future endeavors. One of the primary ways we measure the success of our courses is by how well they help students advance their careers. What the studentlearns in our classes is immediately useful—in fact, many classes are developed in anticipation of emerging trends, so the skills our students develop are truly cutting edge. Some of our students have been promoted three times while in the program, as a direct consequence of what they are learning.

"It's no accident that the measures of success for our graduates are very high. Our alumni include the founders of some of the world's largest companies, and thought leaders and managers in many U.S. companies and others worldwide."

Concentration in Web Application Development

The concentration in Web Application Development provides fundamental concepts to develop web applications. The courses offer comprehensive coverage of both client-side and server-side development. The latest topics in PHP, .NET (C# 3.0, ASP.NET 3.5, ADO, NET, L1NQ, WCF, and WPF), and Enterprise Java (Servlets, JSP, Hibernate, Spring, and EJBs) are widely covered. Students will also learn and work with cutting-edge technologies such as Ruby on Rails, AJAX, Flex, and Google Web Toolkit (GWT). Students will be creating real-world web application projects that will also involve interacting with databases such as Oracle, MySQL, and SQLSERVER.

In addition to the MS in Computer Information Systems core curriculum (24 credits), students pursuing a concentration in Web Application Development must also satisfy the following requirements:

Required Web Application Development Courses

(Two courses/8 credits)

MET CS 601 Web Application Development*
MET CS 701 Rich Internet Application Development

Electives

(Two courses/8 credits)

Two courses selected from the following:

MET CS 632 IT Project Management
MET CS 633 Distributed Software Development and Management
MET CS 783 Enterprise Architecture

**MET CS 601 may not be taken as an MSCIS core course and a concentration requirement. Students concentrating in Web Application Development must take MET CS 520 Information Structures as a core course.*

Master of Science in Computer Science

Available on BU's main campus and North Campus–Chelmsford

Intended for computer professionals and those who wish to move into the computer field from other areas of study, the MS in Computer Science prepares students for careers as information security specialists, software engineers, and software systems leaders.

Optional Concentrations

- Computer Networks (Boston Campus only)
- Security

Prerequisites

Students who complete the program's prerequisites at Boston University can earn the Certificate in Computer Science. Contact the Department of Computer Science for more information.

Applicants to the program are required to have a bachelor's degree from a regionally accredited institution and proficiency in the following areas:

MET CS 201 Introduction to Programming
MET CS 231 Programming with C++ or
MET CS 232 Programming with Java
MET CS 248 Discrete Mathematics
MET CS 341 Data Structures with C++ or
MET CS 342 Data Structures with Java
MET CS 472 Computer Architecture

If college-level credit courses are not in evidence, the department will determine what prerequisite courses must be completed in addition to graduate degree requirements. Students claiming equivalent proficiency in the prerequisite courses from non-academic sources must take an examination to demonstrate such proficiency.

Degree Requirements

A total of ten courses (40 credits) is required to obtain the MS in Computer Science:

Core Curriculum

(Five courses/20 credits)

MET CS 535 Computer Networks or
MET CS 579 Database Management
MET CS 566 Analysis of Algorithms
MET CS 575 Operating Systems
MET CS 662 Computer Language Theory
MET CS 673 Software Engineering

Electives

(Five courses/20 credits)

Students who are not pursuing a concentration must select five general electives with at least three courses at the 600-level or above. Visit bu.edu/met/cs for current eligible offerings.

Master's Thesis Option

(8 credits)

Students majoring in Computer Science may elect a thesis option, to be completed within 12 months. This option is available to Master of Science in Computer Science candidates who have completed at least seven courses toward their degree and have a GPA of 3.7 or higher. Students are responsible for finding a thesis advisor and a principal reader within the department. The advisor must be a fulltime faculty member; the principal reader may be part-time faculty with a PhD (unless waived by department).

MET CS 810/811 Master's Thesis

Concentration in Computer Networks

This concentration offers a broad foundation in information technology, along with an in-depth exploration of computer data communication and modem networking. The Computer Networks concentration provides a comprehensive examination of network design and implementation, network performance analysis and management, network security, and the latest networking technology. The program is designed to empower students with extensive hands-on experience, in order to analyze, design, procure, manage, and implement cuttingedge computer networking solutions and technologies.

In addition to the MS in Computer Science core curriculum (20 credits), students pursuing a concentration in Computer Networks must also satisfy the following requirements:

Required Computer Networks Courses

(Four courses/16 credits)

MET CS 635 Network Design and Implementation
MET CS 685 Network Design and Management
MET CS 690 Network Security
MET CS 775 Advanced Networking

Electives

(One course/4 credits)

Select no more than one general elective. Visit bu.edu/met/cs for current eligible offerings.

Concentration in Security

This concentration provides students with in-depth knowledge of emerging security threats and solutions—enabling them to assume roles of leadership in identifying, developing, and implementing highly secure systems and networks that support organizational goals.

In addition to the MS in Computer Science core curriculum (20 credits), students pursuing a concentration in Security must also satisfy the following requirements:

Required Security Courses

(Three courses/12 credits)

MET CS 690 Network Security
MET CS 695 Enterprise Information Security
MET CS 789 Cryptography

Electives

(Two courses/8 credits)

Security Electives

One course selected from the following:

MET CS 599 Biometrics
MET CS 674 Database Security
MET CS 684 IT Security Policies and Procedures
MET CS 693 Digital Forensics and Investigations
MET CS 703 Network Forensics
MET CS 713 Advanced Digital Forensics
MET CS 799 Advanced Cryptography

General Electives

Select no more than one general elective. Visit bu.edu/met/cs for current eligible offerings

Boston University's North Campus—Chelmsford

Metropolitan College offers the complete Master of Science in Computer Science (MSCS) degree at Boston University's campus in Chelmsford, Mass. Conveniently located in the high technology corridor northwest of Boston, North Campus–Chelmsford is a welcome alternative for those living and/or working to the north of the city. The Chelmsford location offers a number of benefits, including:

- Modern corporate facilities
- Fully-equipped computer laboratories
- Wireless broadband Internet access
- Small class sizes
- Convenient, free parking

Classes are held at 100 Apollo Drive, Chelmsford, Mass.—just off of Route 3 (Exit 29) and close to major routes such as 495, 95, and 93.

Learn more at bu.edu/met/locations, or contact Holly Conviser, manager of off-campus programs, at 617-358-3265 or email conviser@bu.edu.

Bryan Dina

Senior Systems Integration Engineer, RSA, The Security Division of EMC
MS in Computer Science ('09)
Graduate Certificate in Information Security ('07)

"I work in northern Massachusetts and I live in the Manchester, New Hampshire area. Most of the colleges within an hour's drive of me don't have real night programs, so when I learned that Metropolitan College was offering a graduate certificate in Information Security at my workplace, I jumped on it. I took the first course and I was blown away. Based on that, I decided to pursue my master's at BU, attending classes at their North Campus. My commute was probably no more than thirty minutes from desk to desk, and I was in class with other working professionals from that area. During class discussions, I got a variety of firsthand perspectives on the theories we covered. You learn a lot from other students' personal experiences, not just from books."

Master of Science in Telecommunication

The MS in Telecommunication integrates knowledge of the computer science, engineering, managerial, and legal aspects of networking and telecommunications. The telecommunication degree program is designed to provide knowledge and critical skills essential for success in this rapidly expanding field. Students gain exposure to fundamental networking technologies, systems, and services; develop the ability to compare networking and telecommunication products and services; and build skills that enable them to manage complex telecommunication projects.

Optional Concentration

• Security

Prerequisites

Applicants to the program are required to have a bachelor's degree from a regionally accredited institution and proficiency in the following areas:

MET CS 201 Introduction to Programming
MET CS 231 Programming with C++ *or*
MET CS 232 Programming with Java
MET CS 472 Computer Architecture

Degree Requirements

A total of ten courses (40 credits) is required to obtain the MS in Telecommunication:

Core Curriculum

(Seven courses/28 credits)

MET CS 535 Computer Networks
MET CS 546 Quantitative Methods for Information Systems
MET CS 575 Operating Systems
MET CS 635 Network Design and Implementation
MET CS 685 Network Design and Management
MET CS 690 Network Security
MET CS 775 Advanced Networking

Electives

(Three courses/12 credits)

Students who are **not** pursuing a concentration must select three general electives with at least two courses at the 600-level or above. Visit **bu.edu/met/cs** for current eligible offerings.

Master's Thesis Option

(8 credits)

Students majoring in Telecommunication may elect a thesis option, to be completed within twelve months. This option is available to Master of Science in Telecommunication candidates who have completed at least seven courses toward their degree and have a GPA of 3.7 or higher. Students are responsible for finding a thesis advisor and a principal reader within the department. The advisor must be a full-time faculty member; the principal reader may be part-time faculty with a PhD (unless waived by the department).

MET CS 810/811 Master's Thesis

Concentration in Security

This concentration provides students with in-depth knowledge of emerging security threats and solutions—enabling them to assume roles of leadership in identifying, developing, and implementing highly secure systems and networks that support organizational goals.

In addition to the MS in Telecommunication core curriculum (28 credits), students pursuing a concentration in Security must satisfy the following requirements:

Required Security Courses

(Two courses/12 credits)

MET CS 703 Network Forensics
MET CS 789 Cryptography

Electives

(One course/4 credits)

One course selected from the following:

MET CS 674 Database Security
MET CS 684 IT Security Policies and Procedures
MET CS 693 Digital Forensics and Investigations
MET CS 695 Enterprise Information Security
MET CS 713 Advanced Digital Forensics
MET CS 799 Advanced Cryptography

Graduate Certificate Programs

Multidisciplinary knowledge and lifelong learning are necessities of professional life. Graduate certificates in IT are designed for professionals and others who wish to keep on the cutting-edge of industry knowledge or acquire new expertise in the field.

Each graduate certificate has four required courses. Completed courses may be applied toward Metropolitan College master's degrees in Computer Information Systems, Computer Science, or Telecommunication.

Advanced Information Technology (Business Informatics)

■ On campus, online, and blended

This certificate provides students with state-of-the-art knowledge of modern enterprise IT and systems analysis. It offers hands-on experience in the most important contemporary business informatics areas such as advanced database management, web development, IT project management, and enterprise information security. Students graduating with this BU certificate should be able to provide unique expertise to enterprises dealing with the major IT challenges of today, as well as a solid foundation for exploring the advanced IT challenges of tomorrow.

Those who complete both the Certificate in Information Technology and the Certificate in Advanced Information Technology will have satisfied all but two of the courses required to complete the Master of Science in Computer Information Systems.

Prerequisites

Applicants to the program are required to have a bachelor's degree. Some courses may have additional prerequisites.

Curriculum

(Four courses/16 credits)

MET CS 601 Web Application Development
MET CS 632 IT Project Management
MET CS 695 Enterprise Information Security
MET CS 779 Advanced Database Management

Computer Networks

■ On campus and online

The certificate in Computer Networks offers a broad foundation in information technology, along with an in-depth exploration of computer data communication and modern networking. Students undertake a comprehensive examination of network design and implementation, network performance analysis and management, network

Did you know?

In 2012, the British weekly Times Higher Education ranked Boston University 54th out of 400 top universities in the world.

security, and the latest networking technology. The program is designed to empower students with extensive knowledge and hands-on experience, in order to analyze, design, procure, manage, and implement cutting-edge computer networking solutions and technologies.

Prerequisites

Applicants to the program are required to have a bachelor's degree. Some courses may have additional prerequisites.

Curriculum—on campus

(Four courses/16 credits)

MET CS 535 Computer Networks
MET CS 635 Network Design and Implementation
MET CS 685 Network Design and Management *or*
MET CS 775 Advanced Networking
MET CS 690 Network Security

Curriculum—online

(Four courses/16 credits)

MET CS 535 Computer Networks
MET CS 635 Network Design and Implementation
MET CS 685 Network Design and Management
MET CS 690 Network Security

Database Management & Business Intelligence

■ On campus, online, and blended

Database systems are the "information heart" of modern enterprises—they are used to process business transactions, and as a means of understanding and managing the enterprise. Business intelligence is the analysis of data to improve management and routine business operations such as intelligent supply chain management. In this certificate program, students design and implement transaction processing and decision support databases, learning how to use data mining technologies to discover the structure, trends, and relationships in the data to produce valuable business insights and effective decision support processes.

Lou Chitkushev *PhD*
Associate Dean for Academic Affairs
Associate Professor of Computer Science
Associate Director, BU Center for Reliable Information Systems & Cyber Security

"MET's Computer Science professors are leaders in terms of the number of research areas and University-wide initiatives they participate in, encompassing all aspects of information assurance (IA) and cyber security.

"In April 2004, MET's Computer Science programs were the first and only ones at BU to receive security certification by the Committee on National Security Systems (CNSS), through the National Security Agency (NSA) INFOSEC National IA Education and Training Program. In 2005, the Computer Science department played a pivotal role in earning Boston University's recognition as a National Center of Academic Excellence in IA Education by the NSA and the Departments of Defense and Homeland Security.

"The following year, our faculty, together with faculty from other BU academic units, founded the Center for Reliable Information Systems & Cyber Security (RISCS). A unique, University-level institute focusing on information assurance education and the promotion and coordination of research on reliable and secure computation, RISCS provides increased opportunities for collaboration among researchers from cognate fields. This contributed to the BU's recognition as a National Center of Academic Excellence in Research in 2008."

Academic credits earned toward the Graduate Certificate in Database Management & Business Intelligence may be transferred to a Master of Science degree in Computer Science, Computer Information Systems, or Telecommunication.

Prerequisites

Applicants to the program are required to have a bachelor's degree. Some courses may have additional prerequisites.

Curriculum—on campus

(Four courses/16 credits)

MET CS 669 Database Design and Implementation for Business *or*
MET CS 579 Database Management
MET CS 699 Data Mining and Business Intelligence
MET CS 779 Advanced Database Management

And one selected from the following:

MET CS 674 Database Security
MET CS 689 Designing and Implementing a Data Warehouse
MET CS 780 Database Administration

Curriculum—blended/online

(Four courses/16 credits)

MET CS 669 Database Design and Implementation for Business
MET CS 674 Database Security
MET CS 699 Data Mining and Business Intelligence
MET CS 779 Advanced Database Management

Did you know?

The Department of Computer Science posts current job opportunities on their website, providing students with access to careers in a variety of IT-related industries. Visit bu.edu/csmet/careers.

Digital Forensics

■ On campus and blended

Computers and various digital devices are used throughout all organizations, small or large, for day-to-day business operations. The fundamental role of digital systems in business brings with it serious security challenges. Hackers and criminals are constantly attacking all types of organizations. To mitigate such risks, it is important for IT specialists to obtain comprehensive overview of digital forensics. This specialized graduate certificate program in digital forensics will provide students comprehensive "digital crime scene investigation" knowledge. This program introduces students to forensic analysis policy and procedures, forensic analysis tools, data recovery, and investigation, amongst other topics.

Academic credits earned toward the Graduate Certificate in Digital Forensics may be transferred to the Master of Science in Computer Information Systems.

Prerequisites

Applicants to the program are required to have a bachelor's degree. Some courses may have additional prerequisites.

Curriculum

(Four courses/16 credits)

MET CS 625 Business Data Communication and Networks
MET CS 693 Digital Forensics and Investigations
MET CS 703 Network Forensics
MET CS 713 Advanced Digital Forensics or
MET CS 699 Data Mining and Business Intelligence

Health Informatics

■ On campus and online

The objective of this program is to expose students to modern health IT, including heath data collection, processing, and storage. This program primarily focuses on electronic medical data generated and stored in health care and public health organizations. Individuals who complete the Health Informatics certificate program will have a solid knowledge of health information technology and systems and electronic health records as well as a solid exposure to the latest medical technologies.

Prerequisites

Applicants to the program are required to have a bachelor's degree. Some courses may have additional prerequisites.

Curriculum

(Four courses/16 credits)

MET CS 570 Biomedical Sciences and Health IT
MET CS 580 Health Informatics
MET CS 581 Electronic Health Records
MET CS 781 Advanced Health Informatics

Information Security

■ On campus, online, and blended

Developing a strong information security program in today's world is crucial and challenging for most organizations. In general, information security means protecting information from unauthorized access, disclosure, or destruction. Information security is essential because most organizations—including government agencies, hospitals, insurance companies, and private businesses—store various kinds of information about their employees and customers. If any business-related information is confidential, the security of that data becomes crucial. For example, if critical business data (e.g., credit card numbers or design documents) is leaked to competitors or hackers, it could lead to loss of business, lawsuits, and even bankruptcy. Organizations also need to be able to comply by standards and laws, such as HIPPA, PCI, and GLBA, which help protect the confidentiality and privacy of customer data.

This Information Security certificate program will touch upon various aspects of information security, including IT security

Guanlang Zhang *PhD*
Associate Professor of Computer Science

"Metropolitan College's Department of Computer Science Health Informatics program attracts students from very broad backgrounds. The majority of them come with experience in the fields of computer science, engineering, or IT, the areas of medicine and nursing, or some aspect of management. Many of them already work full-time in a health care environment and seek to expand their existing skills for the sake of career advancement.

"Benjamin Franklin once remarked, 'Energy and persistence conquer all things.' I share this adage with my students because these qualities are essential to success in the health care IT field. The best skill that they can bring to their respective careers is the ability to do research on their own. The landscape of health care IT changes so rapidly today that students who are able to research and learn new things on their own are really ahead of the game."

policies and system security. Students may also learn about digital forensics to help in investigating a security breach, or obtain a good understanding of how information is stored in a database and what services are available to protect it. On completing the graduate certificate, the students will have sufficient skills in developing and implementing IT security in their organizations.

Academic credits earned toward the Graduate Certificate in Information Security may be transferred to a Master of Science degree in Computer Science, Computer Information Systems, or Telecommunication.

Prerequisites

Applicants to the program are required to have a bachelor's degree. Some courses may have additional prerequisites.

Curriculum—on campus

(Four courses/16 credits)
Choose any four of the following:

MET CS 599 Biometrics
MET CS 674 Database Security
MET CS 684 IT Security Policies and Procedures
MET CS 690 Network Security
MET CS 693 Digital Forensics and Investigations
MET CS 695 Enterprise Information Security
MET CS 703 Network Forensics
MET CS 713 Advanced Digital Forensics
MET CS 789 Cryptography
MET CS 799 Advanced Cryptography

Curriculum—online

(Four courses/16 credits)

MET CS 674 Database Security
MET CS 684 IT Security Policies and Procedures
MET CS 693 Digital Forensics and Investigations
MET CS 695 Enterprise Information Security

Yuting Zhang *PhD*
Assistant Professor of Computer Science

"I teach core courses in operating systems and in software engineering, two areas I consider to be the foundation of any career in computer science. It's essential that students become proficient in critical thinking, problem solving, and team building. They must also develop solid communication and presentation skills, in order to work knowledgeably with others.

"Students at MET learn how to excel in both conceptual and hands-on work. Otherwise, knowledge remains merely external. My aim is to prepare students to assume highly responsible positions as software engineers and computer systems analysts. These roles require the ability to understand the whole system."

Curriculum—blended

(Four courses/16 credits)
Choose any four of the following:

MET CS 674 Database Security
MET CS 684 IT Security Policies and Procedures
MET CS 693 Digital Forensics and Investigations
MET CS 695 Enterprise Information Security
MET CS 703 Network Forensics
MET CS 713 Advanced Digital Forensics

Information Technology

■ On campus, online, and blended

This certificate provides students with hands-on experience in various aspects of software design and implementation, as well as comprehensive knowledge about the state-of-the-art in information technology. Reports and surveys from the industry reveal that the business world today wants graduates with good technical skills. Students earning this certificate will graduate with the following strengths:

- Broad business perspectives
- Information systems (IS) skills, including hardware and software programming
- A strong grasp of communication and teamwork
- Analytical and critical thinking abilities
- Cutting-edge knowledge in areas of systems analysis, web technology, data communications, and database systems

Students will also be able to assist an organization in dealing with major IS challenges, such as:

- Assessing the information needs of different organizational levels within a company
- Designing, or participating in designing, systems for an organization that are both competitive and efficient
- Creating an IS architecture that aligns with organizational goals
- Developing systems that people can control, understand, and use in a socially and ethically responsible manner Those who complete both the Certificate in Information Technology and the Certificate in Advanced Information Technology will have satisfied all but two of the courses required to complete the Master of Science in Computer Information Systems.

Prerequisites
Applicants to the program are required to have a bachelor's degree. Some courses may have additional prerequisites.

Curriculum
(Four courses/16 credits)

MET CS 625 Business Data Communication and Networks
MET CS 669 Database Design and Implementation for Business
MET CS 682 Information Systems Analysis and Design
MET CS 782 IT Strategy and Management

IT Project Management
■ On campus, online, and blended

It is important to be informed of new and improved project management tools and techniques in today's competitive market, where only the best project managers will succeed in completing assignments in a timely, cost-effective, and quality-conscious manner. Project managers, systems analysts, designers, programmers, research managers, and others engaged in the administration of technical projects will find this graduate certificate valuable. Students will also be able to pursue Project Management Professional (PMP®) certification, if they wish to do so, after completing this program. Students may also take an optional PMP® exam preparation course for free.

Academic credits earned toward the Graduate Certificate in IT Project Management may be transferred toward the Master of Science in Computer Information Systems, which is accredited by the Project Management Institute's Global Accreditation Center.

.

Prerequisites
Applicants to the program are required to have a bachelor's degree and programming experience equivalent to MET CS 231 Introduction to Computer Science for Programmers with C++ or MET CS 232 Introduction to Computer Science with Java.

Curriculum—on campus
(Four courses/16 credits)

MET CS 632 IT Project Management
MET CS 633 Distributed Software Development and Management
MET CS 673 Software Engineering or
MET CS 682 Information Systems Analysis and Design
MET CS 782 IT Strategy and Management

Curriculum—online/blended
(Four courses/16 credits)

MET CS 632 IT Project Management
MET CS 633 Distributed Software Development and Management
MET CS 682 Information Systems Analysis and Design
MET CS 782 IT Strategy and Management

Medical Information Security & Privacy
Students gain exposure to the complex and varied factors that must be taken into account when addressing information security issues within health care systems. This certificate presents the methods and skills needed for designing and building secure and reliable systems by developing an understanding of the special requirements of health care systems, where privacy of personal data must be balanced with access to patient records.

Prerequisites
Applicants to the program are required to have a bachelor's degree. Some courses may have additional prerequisites.

Kathleen Kudzma
Senior Software Engineer, Aptima®
MS in Computer Science ('08)

"When I enrolled in the program at Metropolitan College, I had over twenty years of experience in the software development industry. But I realized that I needed an edge over others in the market.

"Boston University's reputation was a significant factor in coming to Metropolitan College, but the College also had a lot of interesting courses in emerging technology trends that applied directly to my field of work. In the Computer Science master's, I learned a lot of things that I was able to use at my job, and that played a major part in getting promoted. I was able to take what I had learned working on projects in class, and transfer that knowledge to projects I was developing. Some of the techniques I learned weren't familiar to my colleagues at work, so I was even able to impart some of what I had learned and show them how to do newer things."

Curriculum
(Four courses/16 credits)

MET CS 580 Health Informatics
MET CS 581 Electronic Health Records
MET CS 695 Enterprise Information Security

And one selected from the following:

MET CS 674 Database Security
MET CS 684 IT Security Policies and Procedures

Software Engineering

This program is designed to produce software engineers who will participate in and lead development projects. It enables students to plan, design, and implement software applications. The program emphasizes the object-oriented method, but also covers structured techniques, project management, and testing. C++ and Java are the principal object-oriented languages used, although knowledge of Java is not a prerequisite. The program is suited both to programmers seeking professional growth and to software engineers who want to learn the objectoriented paradigm.

Academic credits earned toward the Graduate Certificate in Software Engineering may be transferred to a Master of Science degree in Computer Science, Computer Information Systems, or Telecommunication.

Prerequisites

Applicants to this program are required to have a bachelor's degree and the Certificate in Computer Science or its equivalent in experience. Some courses may have additional prerequisites.

Curriculum

(Four courses/16 credits)

MET CS 632 IT Project Management or
MET CS 893 Agile and Advanced Software Engineering Methods
MET CS 665 Design Patterns and Components
MET CS 673 Software Engineering
MET CS 773 Software Quality Management

Software Engineering in Health Care Systems

The objective of this program is to prepare software engineers to participate in and lead development projects in health IT. The curriculum enables graduates to plan, design, and implement software health care applications. The program emphasizes the object-oriented method, but also covers structured techniques, project management, and testing. Java and C++ are the principal object-oriented languages used. The health care-specific knowledge is provided by courses in biomedical IT and electronic health records, as well as through examples, modules, and case studies within the existing technical courses.

Prerequisites

Applicants to the program are required to have a bachelor's degree. Some courses may have additional prerequisites.

Curriculum

(Four courses/16 credits)

MET CS 580 Health Informatics
MET CS 581 Electronic Health Records
MET CS 673 Software Engineering

And one selected from the following:
MET CS 632 IT Project Management
MET CS 665 Design Patterns and Components
MET CS 773 Software Quality Management

Web Application Development

■ On campus and online

The graduate certificate in Web Application Development provides fundamental concepts to develop web applications. The courses offer comprehensive coverage of both client-side and server-side development. The latest topics in PHP, .NET (C# 3.0, ASP.NET 3.5, ADO, NET, L1NQ, WCF, and WPF), and Enterprise Java (Servlets, JSP, Hibernate, Spring, and EJBs) are widely covered. Students will also learn and work with cutting-edge technologies such as Ruby on Rails, AJAX, Flex, and Google Web Toolkit (GWT). Students will be creating real-world web application projects that will also involve interacting with databases such as Oracle, MySQL, and SQLSERVER.

Academic credits earned toward the Graduate Certificate in Web Application Development may be transferred to a Master of Science degree in Computer Science, Computer Information Systems, or Telecommunication.

Prerequisites

Applicants to this program are required to have a bachelor's degree and programming experience equivalent to MET CS 231 or MET CS 232, and either MET CS 341 or MET CS 342. Some courses may have additional prerequisites.

Curriculum—on campus

(Four courses/16 credits)

MET CS 579 Database Management or
MET CS 669 Database Design and Implementation for Business
MET CS 601 Web Application Development
MET CS 651 Web Development with .NET or **MET CS 667** Enterprise Java
MET CS 751 Web Services or
MET CS 701 Rich Internet Application Development

Curriculum—online

(Four courses/16 credits)

MET CS 601 Web Application Development
MET CS 632 IT Project Management or
MET CS 633 Distributed Software Development and Management
MET CS 669 Database Design and Implementation for Business
MET CS 701 Rich Internet Application Development

Admissions

Graduate Programs

Candidates are admitted to degree or certificate programs on the basis of official undergraduate transcripts, three letters of recommendation, personal statement, and résumé. Standard admissions tests, such as the GRE, are not required. The TOEFL is required for most international students.

Transcripts of completed prerequisite courses, or evidence of proficiency in these areas, must accompany your application to a graduate program. If college-level credit courses are not in evidence, the Department of Computer Science will determine what prerequisite courses must be completed in addition to the graduate program requirements. Students claiming equivalent proficiency in prerequisite courses from nonacademic sources must take an examination to demonstrate such proficiency.

Please contact Kim Richards, program coordinator, at csinfo@bu.edu with any questions.

Academic Advising

Experienced academic counselors are available to assist prospective graduate students. Our graduate advisor, Dr. Jae Young Lee (csinfo@bu.edu), can provide guidance on enrollment procedures, course selection, academic requirements, and issues related from transferring from another institution. By discussing your academic background and your future goals, we can help you determine the best sequence of courses for your objectives. Advising services are free for current students and those considering enrollment.

How to Apply

Applications may be completed online, or forms may be requested from the Computer Science department. Graduate Admissions Committees meet on an ongoing basis. The Department of Computer Science has rolling admissions and accepts applications throughout the year.

For more information, visit **bu.edu/met/admissions**.

Undergraduate Programs

Undergraduate applications are reviewed on a rolling basis. The Admissions Committee meets continuously throughout the year. For specific policies regarding undergraduate admission criteria, contact Undergraduate Student Services at **617-353-2980** or **metuss@bu.edu**, or visit **bu.edu/met/admissions**.

Academic Advising

Prior to applying, we recommend that you meet with an academic counselor in Undergraduate Student Services. Academic counselors are available to help undergraduate degree and certificate candidates evaluate the wide scope of programs offered by Metropolitan College Undergraduate Student Services provides guidance on enrollment procedures, course selection, and academic requirements. For more information, please call **617-353-2980**.

How to Apply

Applications may be completed online, or forms may be requested from Undergraduate Student Services at **617-353-2980** or **metuss@bu.edu**.

For more information, visit **bu.edu/met/admissions**.

International Students

International students should submit their completed undergraduate or graduate application materials in addition to the following materials:

- Score from Test of English as a Foreign Language (TOEFL)
- International Student Data Form
- Authorized financial statement from a bank (original, shown in U.S. dollars)
- Copy of current I-20 and I-94, both sides (if applicable)
- Letter of financial support from sponsor (firm, government, parents, etc.)
- Notarized English translations of all documents not in English

Undergraduate applicants must also provide:

- Official high school and college transcripts, with official translations and evaluations
- Transfer Student Status Report Form

To allow for processing time, international **graduate applicants** requiring student visas must submit completed application materials and International Students & Scholars Office (ISSO) forms at least six weeks prior to the start of the semester. International undergraduate applicants must submit completed application materials by April 1 (September candidates) or November 1 (January candidates).

For more information about admission, please visit **bu.edu/met/international-students**.

International Students & Scholars Office (ISSO)

ISSO can guide you through the documentation requirements and visa application process, in addition to answering questions about transportation, health care, employment, and social activities. Applicants to graduate programs should contact ISSO to obtain necessary documentation. Visit bu.edu/isso.

Open Registration

Metropolitan College's open-registration policy allows you to enroll in courses without applying to a specific program. However, if you decide to enter one of our graduate degree or certificate programs, a maximum of two eligible graduate courses may be applied toward the degree requirements.

Prior to registering, students should check course descriptions in the upcoming semester's course schedule or at **bu.edu/met/courses**. Check for prerequisites that may have to be completed before you enroll. Some courses may also have limited enrollment. Call **617-353-6000** for more information.

Financial Assistance

Metropolitan College provides a variety of scholarship opportunities for eligible students and alumni, as well as graduate assistantships and other financial aid.

For Graduate Students

The Metropolitan College Graduate Financial Aid office offers comprehensive financial aid services to graduate students. We assist students in financing their education through assistantships, the Federal Stafford Loan, or the Graduate Plus Loan. To learn more, contact the office at **617-358-3993** or **finanaid@bu.edu**, or visit **bu.edu/met/admissions/financial-aid**.

For Undergraduate Students

For details about undergraduate financial assistance, please call **617-353-2965** or visit **bu.edu/finaid**.

Scholarships

Boston University Metropolitan College offers a variety of scholarships for undergraduate and graduate students. For full details, please visit **bu.edu/met/scholarships**.

Information Assurance Scholarship

Available to eligible undergraduates studying full-time as well as those thinking of going to graduate school, the Information Assurance Scholarship provides a full scholarship and exciting employment opportunities at the Department of Defense.

The scholarship includes:

- Full tuition, fees, and cost of books
- An annual stipend of $12,000 (undergraduates) or $17,000 (graduate students)
- Paid internship opportunities at the Department of Defense
- Travel expenses for related conferences

After graduation, recipients work in civilian positions at the Department of Defense, one year for each year of scholarship. Jobs are information security related, providing an opportunity to work with leading-edge technologies and the most sophisticated infrastructures—as well as the possibility of full-time permanent positions with the Department of Defense.

For more information, contact Dr. Anatoly Temkin at **617-353-2566** or **temkin@bu.edu**, or visit **bu.edu/met/scholarships**.

FAQs

If you still have questions about Metropolitan College's IT programs, you can find many answers at bu.edu/csmet/admissions/faq.

You may also contact our graduate advisor, Dr. Jae Young Lee, at 617-353-2566 or csinfo@bu.edu.

For undergraduate advising, call 617-353-2980 or email metuss@bu.edu.

ACE IT

Alumni of Metropolitan College may be eligible for the Alumni Career Enrichment in IT incentive, which waives 50 percent of tuition costs on the latest IT courses at Metropolitan College.

There is just one qualification for participating in ACE IT:

- You must hold a master's degree in computer science, computer information systems, or telecommunication from Metropolitan College

Those who are eligible may:

- Enroll in up to two on-campus Metropolitan College IT graduate courses per semester
- Receive course credit
- Enjoy waivers of course prerequisites
- Enhance career skills and IT knowledge
- Reconnect with the Metropolitan College community

For more information, please contact **Kim Richards** at **617-353-2566** or **kimrich@bu.edu**.

Housing

Housing is not available through Metropolitan College or the Department of Computer Science. Graduate students seeking on-campus housing should contact BU's Office of Rental Property Management. For more information, call 617-353-4101, email rental@bu.edu, or visit **bu.edu/rpm**.

BU's Off-Campus Housing Listing Service maintains an online list of off-campus apartments and rooms in the local area. For more information, call 617-353-3523, email och@bu.edu, or visit **bu.edu/offcampus**.

Registration Procedures

All students are expected to register for courses during the regular registration period each semester. Exact dates, methods, times, and location of registration are published in the course schedule prior to each semester. A calendar of important dates and a registration form can be found at **bu.edu/met/admissions**.

Prerequisites

You may be admitted to a degree program prior to completing the stated prerequisite courses, based on a formal evaluation of your academic record by the department. This evaluation will identify the specific prerequisite courses to be completed. In general, prerequisites must be satisfied within two semesters (full-time) or four semesters (part-time), and before related coursework. Prerequisite courses can also be satisfied by taking a waiver examination. Waiver exams are pass/fail, three-hour open book exams. Syllabi for waiver exams are available from the department upon request.

Academic Standing

The minimum passing grade for a course in a graduate program is a C (2.0), but an academic average of B (3.0) must be maintained to be considered in good academic standing and to satisfy degree requirements.

Course Substitutions and Waivers

If you have completed courses in core curriculum subjects as part of your undergraduate degree program, you'll need to replace the corresponding core courses with electives. It is recommended that each replacement course be in the same technical area. If you have work-related experience in any of the core curriculum courses, you may apply for a waiver by submitting appropriate documentation. When a course waiver is granted, you must substitute an elective for the core course.

Department Faculty

MET's Computer Science faculty contribute vital knowledge to the IT field through their publications, national and international conference presentations, and active research. Areas of particular interest to our faculty include: software engineering and applications; biomedical informatics; autonomous agent systems; enterprise Java applications; object-oriented design and analysis; operating/information systems security; database management and business intelligence; data mining; outlier detection; unusual sequence detection; association rule mining; metrology; simulation; computer-aided training; discrete mathematics; computer language theory; cryptography; computational modeling of visual perception; parallel and distributed processing; and pattern recognition.

Over its thirty-year history, the Computer Science department has been instrumental in developing the information security curriculum that led to Boston University's designation as a Center for Academic Excellence by the National Security Agency. Through their role in the University's Center for Reliable Information Systems & Cyber Security (RISCS), our faculty collaborated with BU's College of Arts & Sciences, College of Engineering, and 15 industry and international partners to secure two $3 million grants from the National Science Foundation in 2010. These funds will support two major research projects in the field of IT, involving security with the open softphone and the "cloud."

Full-time Faculty

Eric J. Braude

Associate Professor of Computer Science *PhD, Columbia University; MS, University of Miami; MS, University of Illinois; BSc, University of Natal*

Dr. Braude teaches software design, IT strategy, artificial intelligence, information system security, software engineering, and mobile application development. His books have been translated into several languages. Braude has taught at the University of Pennsylvania, City University of New York, and Pennsylvania State University, and has served as technology advisor to corporations such as Philips, Lockheed, Lucent Technologies, and MITRE Corporation.

Lou Chitkushev

Associate Dean for Academic Affairs and Associate Professor of Computer Science

PhD, Boston University; MS, Medical College of Virginia; MS, BS, University of Belgrade

Dr. Chitkushev has served on several IEEE conference committees and as a NSF review panelist. He is cofounder and associate director of Boston University's Center for Reliable Information Systems & Cyber Security (RISCS), and played a role in initiatives that led to Boston University's designation as a Center of Academic Excellence in Information Assurance by the National Security Agency. Chitkushev teaches data communications, computer networks, advanced Internet technologies, medical informatics, and network security.

Suresh Kalathur

Assistant Professor of Computer Science PhD, *MA, Brandeis University; MS, Indian Institute of Technology; BS, Regional Engineering College (India)*

Dr. Kalathur's interests include autonomous agent systems, enterprise Java applications, object-oriented design and analysis, and operating systems security. He served as a lecturer and adjunct faculty at Tufts University and Worcester Polytechnic Institute, and he developed software and systems for several organizations and agencies. Kalathur teaches courses in Java programming, ASP.NET, J2EE, Web Services, and data mining.

Vijay Kanabar

Associate Professor of Computer Science and Administrative Sciences; Director of Project Management Programs

PhD, University of Manitoba; MS, Florida Institute of Technology; MBA, Webber College; BS, University of Madras, India; PMP (Project Management Professional), Project Management Institute

Dr. Kanabar has unique expertise spanning both business practices and computer science. A certified Project Management Professional, he has advised numerous organizations on training and technology needs, including Blue Cross Blue Shield, Staples, United Way, and Fidelity Investments. Kanabar is an internationally published scholar and is recognized by local and national media as an authority on IT project management, electronic commerce, and information security.

Jae Young Lee

Assistant Professor of Computer Science

PhD, MS, University of Texas at Arlington; BS, Seoul National University, Korea

Dr. Lee has taught various courses in the computer sciences, including database management, data mining, principles of programming languages, digital logic and computer organization, computer architecture and assembly programming, design and analysis of algorithms, and data structures. Before coming to Metropolitan College, he previously instructed at the Colorado School of Mines, the University of North Florida, and the University of Texas at Arlington. Lee actively conducts research on data mining, and has been awarded several grants to fund his work. With a focus on activity mining, he studies the complex activities of moving objects and extracts useful information from activity data.

Robert Schudy

Associate Professor of Computer Science

PhD, MS, University of Rochester; BA, University of California, San Diego

Dr. Schudy has made pioneering breakthroughs in intelligent pilot aiding systems, autonomous systems, metrology, network management, flight operations, and other areas while at BBN Technologies, Hewlett-Packard Laboratories, TASC, and Symbolics. He has consulted for numerous private firms and government agencies, and architected and developed many successful information systems. His business experience includes IT director, CEO, and chief scientist. Schudy is director of the online MS in Computer Information Systems and the database area. He has taught many subjects in the areas of databases, systems analysis and design, and software engineering.

Victor Shtern

Associate Professor of Computer Science

PhD, National Aluminum Institute, Leningrad; MS, Leningrad Mining Institute; MBA, Boston University

Dr. Shtern has more than twenty-five years of experience in the computer industry as a software engineer, systems programmer, training instructor, and course developer. He has conducted research in object-oriented techniques, software testing, database design, simulation, and computer-aided training. His book on C++ has been translated into Chinese, Russian, and Polish. Shtern teaches courses in C/C++ and Java programming, data structures, object-oriented design, software engineering, design patterns, and other topics.

Anatoly Temkin

Chair and Assistant Professor of Computer Science

PhD, Kazan University; MS, Moscow University

Dr. Temkin teaches undergraduate and graduate courses in discrete mathematics, computer language theory, cryptography, algorithms, and computer information systems. In 2004, he received the Metcalf Award for Excellence in Teaching; he also serves as academic advis or to graduate students in computer science. His research interests include information security and curriculum design.

Guanglan Zhang

Assistant Professor of Computer Science

PhD, MS, Nanyang Technological University; MS, Northwestern Polytechnic University; BS, Luoyang Institute of Technology

Dr. Zhang's research focus has been in machine learning, data mining, and knowledge management in the biomedical and health care fields. Her major research interests include computational modeling of complex biological processes, such as the identification of vaccine targets, the development of a framework for rapid development of next-generation biological databases, the building of analytical tools for pattern recognition from biomedical data, and the design of diagnostic tools. She has authored more than thirty journal publications, developed more than twenty online computational systems, and filed two patents as co-inventor. Through the development of advanced computational solutions, she contributes to the rapid progress of basic and applied biology and biomedicine. Zhang served as a research associate at Harvard Medical School, senior bioinformatics engineer at Dana- Farber Cancer Institute, and project leader and senior research engineer at the Institute for Infocomm Research (previous name: Kent Ridge Digital Lab), Singapore.

Yuting Zhang

Assistant Professor of Computer Science

PhD, Boston University; MS, BS, University of Science and Technology Beijing

Dr. Zhang's research mainly focuses on the resource management in soft real-time systems, virtual machine systems, and Internet end-systems, though her interest spreads to all areas of computer systems and networks. Conducted through both theoretic analysis and empirical evaluation, her research has resulted in publication in more than a dozen conference proceedings and journals. Zhang served as an assistant professor at Merrimack College, Wentworth Institute of Technology, Allegheny College, and University of Science and Technology Beijing. She has taught a variety of courses, including information technology, Java/C++/C programming, operating systems, computer networks, analysis of algorithms, software engineering, programming languages, and a research seminar.

Tanya Zlateva
Dean ad interim, Metropolitan College & Extended Education, and Associate Professor of Computer Science
PhD, MS, BS, Dresden University of Technology
Dean Zlateva's research interests include computational modeling of visual perception, parallel and distributed processing, and pattern recognition. She was instrumental in developing the information security curriculum that led to Boston University's designation as a Center for Academic Excellence by the National Security Agency. She is an expert in online course delivery and development, and she has an accomplished research background in computer science. Zlateva is currently codirector of the Boston University Center for Reliable Information Systems & Cyber Security (RISCS).

In 2010, the RISCS team secured two $3 million grants from the National Science Foundation. The funds will support two major research projects in the field of IT: "Securing the Open Softphone" and "Towards Trustworthy Interactions in the Cloud."

Adjunct Faculty

Vladimir Brusic Adjunct Professor of Computer Science *PhD, LaTrobe University (Australia); MBA, Rutgers University; MAppSci, Royal Melbourne Institute of Technology (Australia); MEng, BEng, University of Belgrade (Yugoslavia)*

Bruce Tis Adjunct Assistant Professor of Computer Science *PhD, Boston University; MSEE, BSEE, Northeastern University*

Part-time Faculty

Farshid Alizadeh Shabdiz *DSc, George Washington University; MSc, Tehran University (Iran); BSc, University of Science and Technology*

Adam Arakelian *MS, Boston University; BS, Westfield State College*

Scott Arena *MS, Boston University; BS, Merrimack College*

Saeed Asgari *MS, BS, Oklahoma State University*

Michael Bernstein *EdM, Harvard University; MS, New York University; BA, State University of New York at Buffalo*

Victor Berry *MS, Boston University; BS, State University of New York, Brockport*

Eric Bishop *MS, Boston University; BS, DeVry University*

Joseph Burgoyne *MBA, New Hampshire College; BS, University of Lowell*

Shawn Carroll *MS, Boston University; BS, University of Massachusetts Lowell*

Ellis Cohen *PhD, Carnegie Mellon University; BS, Drexel University*

Ralph Covino *PhD, Nova Southeastern University; MBA, BA, BS, Suffolk University*

Ronald Czik *MS, BA, Boston University*

John Day *MSEE, BSEE, University of Illinois*

Kevin Dill *MS, Northwestern University; BS, Carleton College*

Zoran Djordejevic *PhD, MS, Massachusetts Institute of Technology*

Dragan Grebovic *MS, University of Belgrade; BS, University of Sarajevo*

Dan Greisohk *MA, BS, Brandeis University*

Angelo Guadagno *MBA, Babson College; MS, BS, Villanova University*

Michael Hadavi *MS, Boston University; BS, Lowell Technological Institute*

Yousef Hawili *PhD, MS, BS, Boston University*

Daniel Hebert *MS, BS, Florida State University*

Raj Heda *MS, Boston University*

David Hendrickson *BS, Boston University*

Steve Isenberg *MS, BS, Michigan State University*

Stuart Jacobs *MS, Southern Connecticut State University; BS, University of Wisconsin, Madison*

Nathan Kohn *MA, BA, University of Colorado at Boulder*

Dino Konstantopoulos *PhD, MS, BS, Boston University*

Mike Levinger *MS, Columbia University; AB, Brown University*

George Maiewski *MS, BA, University of Massachusetts*

Warren Mansur *MS, Boston University; BS, Indiana University*

John Maslanka *PhD, MA, Boston College; BS, Massachusetts Institute of Technology*

Robert Montminy *MS, Boston University; BS, Fitchburg State College*

Madani Naidjate *PhD, MS, Boston University; BS, Algiers Polytechnic Institute (Algeria)*

Lawrence Robertie *MBA, Suffolk University; MS, Boston University; BA, Salem State*

Andrew Sheehan *MS, Boston University; BS, State University of New York at Fredonia*

David Shirley *MBA, Monmouth University; BA, Windham College*

J. R. Siegel *MBA, MS, BA, Northeastern University*

Philip Smedile *MS, Boston University; BS, University of Massachusetts*

Izar Tarandach *MS, Boston University; BS, Hebrew University*

Michael Tizio *MS, Boston University; BS, University of Nevada, Reno*

Jay Walters *MS, University of Massachusetts; BS, University of Delaware*

Andrew Wolfe *MS, Boston University; BA, Harvard University*

Contact Us

If you have any questions, please call 617-353-2566 or send an email to csinfo@bu.edu.

BOSTON UNIVERSITY

Boston University Metropolitan College
Department of Computer Science

808 Commonwealth Avenue, room 250
Boston, MA 02215

Phone: 617-353-2566
Email: csinfor@bu.edu

bu.edu/met/cs