

BOSTON  
UNIVERSITY

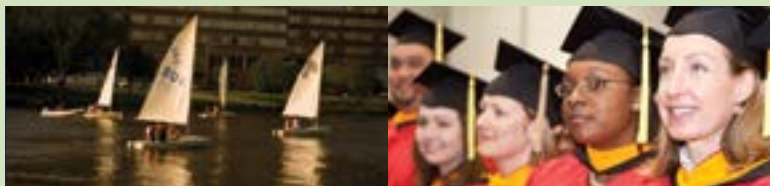


MASTER OF SCIENCE IN  
**ACTUARIAL  
SCIENCE**

[bu.edu/met/actuary](https://bu.edu/met/actuary)



**Boston University** Metropolitan College



## LETTER FROM THE DEPARTMENT CHAIR

Dear Prospective Student,

Greetings and welcome to the exciting field of actuarial science. Year after year, the *Jobs Rated Almanac* places “actuary” near the very top on the list of the 250 best occupations in the United States—based on criteria such as work environment, income, employment outlook, physical demands, security, and stress.

The master’s in Actuarial Science at Boston University’s Metropolitan College opens the door to rewarding careers in industries such as finance, insurance, health care, business, marketing, research, accounting, and management. Our program is unique in that we combine education in actuarial theory and related mathematics with real-world problems derived from the experience of our renowned faculty, many of whom work as actuaries. Our curriculum prepares students to excel on the Society of Actuaries (SOA) and Casualty Actuarial Society (CAS) exams, and ensures that graduates are successful in the many opportunities available to them as practicing actuaries.



We hope you will join other graduate students from around the world in this challenging learning environment, where you will obtain the best preparation for a rewarding career as an actuary.

Best of luck to you,

**Lois K. Horwitz**  
Chair, Department of Actuarial Science  
Associate Professor of the Practice of Actuarial Science  
MA, University of Rochester; BA, Brandeis University  
Fellow, Society of Actuaries  
Member, American Academy of Actuaries



## PROGRAM OVERVIEW

Boston University Metropolitan College's Master of Science in Actuarial Science prepares students for careers as actuaries by providing solid academic training and specialized courses in actuarial science, probability, mathematics, and statistics. Our highly qualified faculty members are able to share first-hand knowledge from their own careers as actuaries. Students develop the skills to embrace the complex and delicate decisions that face actuaries—decisions that often have far-reaching social implications.

The Actuarial Science program is offered on Boston University's Charles River Campus in historic Boston, Massachusetts. Classes are held during evening hours (with some available during the day as well), allowing students to pursue their studies without compromising their careers or giving up other obligations. In addition to the convenience of the schedule, Metropolitan College students enjoy the extensive resources of Boston University, a world-renowned academic and research institution.

## WHAT DOES AN ACTUARY DO?

Actuaries use quantitative skills to analyze data from the past and present, in order to help others make prudent and intelligent financial decisions for the future. By calculating the financial impact of uncertain events—from catastrophes to rates of mortality, disability, and fertility—actuaries enable businesses to adjust their long-term management strategies accordingly. Actuaries work for life, health, and property/casualty insurance companies, as well as for consulting firms, government agencies, accounting firms, industrial corporations, banks, and financial services companies.



## Isabelle Agbassi

MET'09

Wealth Advisor Associate,  
Morgan Stanley

*"What I really appreciated throughout the actuarial science program was the opportunity to learn many business, technical, and complex quantitative topics from professionals. For instance, one professor introduced complex ideas such as fixed income management by showing us many tools he used on a daily basis at work. These presentations gave us a thorough understanding of the different issues we will face in the actuarial field, and risk management in general. It particularly helped me in my job."*

## AN INTERNATIONAL COMMUNITY

The Boston University community welcomes students from all 50 states and more than 139 countries. In fact, BU has one of the largest international student populations—almost 20 percent—of any U.S. university. As a result, our campus is truly diverse and vibrant.

Having such a global-minded student body ensures that the learning process is informed by a variety of different perspectives. In our classrooms, graduate students and working professionals study side by side, ensuring that the exchange of ideas in the classroom is rooted in a diverse range of cultural and social experiences—and that the pedagogical content of each class is enriched by each student's life history, academic training, or professional qualifications.

Outside of the classroom, there are many opportunities to get involved in the BU community. There are 500 student organizations on campus, and many programs and events—so there is something for every interest. You can find a list of organizations and events at the Student Activities website: [bu.edu/studentactivities](http://bu.edu/studentactivities)





## A DYNAMIC CITY

Boston attracts students and visitors from around the world. A city with international flair as well as a distinctly American flavor, Boston is an academic center, a thriving business capital, a historical treasure trove, and home to an array of cultural institutions. And Boston University is situated in the heart of it all.

From the modern skyscrapers of the financial district and the cobblestone streets of Beacon Hill, 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 Harvard Square.

Boston is easy to explore on foot or by subway. 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.

Outdoor activities abound as well. Along the Charles River Esplanade there are jogging and cycling paths, outdoor concerts, and views of the city. The parks that comprise the Frederick Law Olmsted-designed “Emerald Necklace” wind through the city from the Public Garden to Franklin Park. Getting out of Boston is easy, too—the New England coastline, mountains, and countryside are accessible by car, bus, and rail.





## THE MASTER OF SCIENCE (MS) IN **ACTUARIAL SCIENCE**

### CONCENTRATIONS

The master's program in Actuarial Science offers concentrations in Insurance and Mathematical Finance. Students may select either concentration depending on their areas of interest and preparation.

### DUAL DEGREE OPTIONS

In appreciation of the converging nature of management skills and technology, the Actuarial Science department has a special relationship with Metropolitan College's departments of Administrative Sciences and Computer Science. Students wishing to pursue a dual degree in Actuarial Science and Administrative Studies, Computer Information Systems, Computer Science, or Telecommunication may apply eight credits from their Actuarial Science degree toward a second degree, thereby reducing their work by two courses.

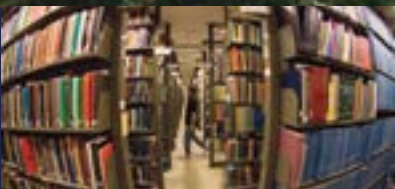
Students must be accepted by both departments, but may request that application materials such as references and transcripts be forwarded from the first program to the second.

### DEGREE REQUIREMENTS

Candidates must complete a total of 43 credits. In addition to a computer laboratory course (**MET AT 602**), a minimum of ten courses (40 credits) at the 500 level or above is required, and should be selected from the following lists of core courses and core elective courses. Courses are 4 credits unless noted otherwise.

#### ACADEMIC STANDING

Minimum passing grade for a course in the graduate program is C, but an average grade of B must be maintained to satisfy the degree requirements.



## CORE COURSES

Six required courses (23 credits) selected from one of the following concentrations:

### CONCENTRATION IN INSURANCE

- Laboratory for Actuarial and Financial Data Analysis II (3 credits) **MET AT 602**
- Mathematics of Compound Interest **MET AT 721**
- Finance for Actuaries **MET AT 722**
- Actuarial Mathematics I **MET AT 731**
- Actuarial Statistics I **MET AT 741**
- Regression and Time Series **MET AT 743**  
**OR** Linear Models **CAS MA 575**  
**OR** Applied Multiple Regression and Multivariable Methods **CAS MA 684**

### CONCENTRATION IN MATHEMATICAL FINANCE

- Laboratory for Actuarial and Financial Data Analysis II (3 credits) **MET AT 602**
- Mathematics of Compound Interest **MET AT 721**
- Finance for Actuaries **MET AT 722**

- Actuarial Mathematics I **MET AT 731**
- Mathematics for Investment and Portfolio Theory **MET AT 761**
- Mathematical Finance **MET AT 762**

### CORE ELECTIVES

The remaining courses (for a total of 20 credits) must be selected from the following list:

- Actuarial Mathematics II **MET AT 732**
- Actuarial Statistics I **MET AT 741**
- Actuarial Statistics II **MET AT 742**
- Regression and Time Series **MET AT 743**
- Individual Insurance Applications of Actuarial Principles **MET AT 751**
- Group Insurance Applications of Actuarial Principles **MET AT 752**
- Actuarial Valuation and Financial Statements **MET AT 753**
- Mathematics for Investment and Portfolio Theory **MET AT 761**

- Mathematical Finance **MET AT 762**
- Pension Mathematics and Mortality Tables **MET AT 782**
- Seminar in Actuarial Science **MET AT 990**
- Software Development with C++ Programming for Mathematical Finance **MET CS 563**
- Probability **MET MA 581**
- Mathematical Statistics **MET MA 582**
- SAS with Statistical Applications **MET MA 603**

Students who have completed any of the above coursework—or successfully passed the corresponding professional examinations—may substitute these courses with other courses after approval by the chair of the department. It must be emphasized that prerequisite courses identified upon admission have to be fulfilled as soon as possible.

In special cases, two elective courses (8 credits) can be taken from the following list, provided written permission is obtained from the Department of Actuarial Science:

- Financial Markets and Institutions **MET AD 712**
- Derivative Securities and Markets **MET AD 713**
- Investment Analysis and Portfolio Management **MET AD 717**
- Planning and Operating New Ventures **MET AD 740**
- Venture Capital and the Economics of Innovation **MET AD 744**
- Multinational Finance **MET AD 763**
- Multinational Tactics, Strategy, and Positioning **MET AD 764**
- Advanced Java Programming **MET CS 565**
- Database Management **MET CS 579**
- Database Design and Implementation for Business **MET CS 669**
- Information Systems Analysis and Design **MET CS 682**
- Object-Oriented Analysis and Design **MET CS 770**
- Advanced Database Management **MET CS 779**
- IT Strategy and Management **MET CS 782**





## DIRECTED STUDIES

Courses in directed studies are offered to students who plan to engage in special research topics under the supervision of a faculty advisor.

## ACTUARIAL INTERNSHIPS

Internship courses are also offered to students who seek practical applications of actuarial principles in insurance companies, financial institutions, pension consulting firms, and other related organizations.

To take internship courses, students should have successfully completed **MET AT 722** and **MET AT 731**, and must maintain an overall GPA of 3.3 or higher.

## PROFESSIONAL EXAMINATIONS

Courses offered in the program are designed to prepare students for the professional actuarial examinations administered by the Society of Actuaries (SOA) and the Casualty Actuarial Society (CAS).





## ADMISSION REQUIREMENTS

To satisfy the admission requirements for the Master of Science in Actuarial Science program, applicants must have the following:

1. A bachelor's degree from an accredited institution.
2. Two semesters of calculus (equivalent to **MET MA 123** and **124**) and one semester of multivariate calculus (equivalent to **MET MA 225**).
3. **International students only**—Results of the TOEFL examination. For current information on the TOEFL, visit **[www.ets.org/toefl](http://www.ets.org/toefl)**. The TOEFL institution code for the Actuarial Science program is 3127.

Candidates must complete a formal application, and may apply at any time during the year. Standardized admissions tests other than the TOEFL are generally not required.

To apply online, visit **[bu.edu/met/admissions](http://bu.edu/met/admissions)**.

If you prefer to have an application mailed, please contact Student & Corporate Outreach at 617-353-6000 or [met@bu.edu](mailto:met@bu.edu).

## INTERNATIONAL STUDENT RESOURCES

There are many BU resources available to students from abroad, offering essential services, support, and English language instruction.

- The International Students & Scholars Office (ISSO) is dedicated to helping international students with concerns about immigration, employment, housing, finances and other issues. Visit them at **[bu.edu/isso](http://bu.edu/isso)**.
- The Center for English Language & Orientation Programs (CELOP) provides intensive English language instruction. Learn more at **[bu.edu/celep](http://bu.edu/celep)**.
- The Student Activities Office sponsors a wide variety of student cultural organizations. See them all at **[bu.edu/sao](http://bu.edu/sao)**

## INFORMATION SESSIONS

Learn more about Metropolitan College programs and policies by attending an information session, webinar, or open house. For upcoming dates, call 617-353-6000, email [met@bu.edu](mailto:met@bu.edu), or visit **[bu.edu/met/info](http://bu.edu/met/info)**.







In 2009, Metropolitan College honored Hal Tepfer with the Roger Deveau Memorial Part-Time Faculty Award. Given to one faculty member each year, this award recognizes mastery of the subject, a distinguished professional record, and the ability to convey not only knowledge and experience, but the enthusiasm for learning that creates a legacy students can draw upon throughout their careers.

*"Besides teaching, I run a pension consulting practice. In class I use my work experience to illustrate theory with practical examples. Actuarial students must have a strong actuarial education, must understand actuarial theory, and—most importantly—must be able to explain complex ideas in ways easily understood by non-actuaries. I help my students accomplish this, giving them an advantage over actuarial students from other universities."*

## HAL TEPPER

Faculty  
Department of Actuarial Science  
Principal, the Savitz Organization  
Fellow, Society of Actuaries  
Enrolled Actuary





# BOSTON UNIVERSITY & METROPOLITAN COLLEGE

Established in 1839, today Boston University is internationally recognized as a top institution of higher learning and research. For 2012–2013, the University was ranked 54th out of 400 universities worldwide by *Times Higher Education* World University Rankings. In fall of 2013, *U.S. News & World Report* ranked Boston University at 41 in their annual report of the nation's colleges and universities.

The University's 16 schools and colleges offer more than 250 undergraduate, graduate, doctoral, and special degree programs, along with the resources of 24 libraries and over 100 academic centers and institutes. With more than thirty-three thousand students from all 50 states and 139 countries, Boston University is the fourth-largest independent university in the United States.

Metropolitan College—one of the University's 16 schools and colleges—demonstrates excellence in teaching and research with over 60 undergraduate and graduate degree and certificate programs, offered full-time and part-time in evening, online, and blended formats. Students benefit from the highest-level of scholarship and research, combined with the expertise of our faculty's extensive professional service in their fields.



**Boston University** Metropolitan College

## CONTACT INFORMATION

Please do not hesitate to contact us with any questions.

### **Boston University**

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met@bu.edu

**bu.edu/met/actuary**



### **STACEY J. GILL**

MET'97

Executive Vice President  
MIB Solutions, Inc

*"Boston University's interdisciplinary actuarial science curriculum aids in exam preparation, but more importantly, provides the technical training and business education required to tackle the complex analytical and management problems an actuary faces. The program gave me the tools and skills I use daily in my job."*

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An equal opportunity,  
affirmative action institution 9/13