

BOSTON UNIVERSITY

BIOMEDICAL FORENSIC SCIENCES

GRADUATE PROGRAM HANDBOOK
2026-2027

BOSTON UNIVERSITY
CHOBANIAN & AVEDISIAN SCHOOL OF MEDICINE

DEPARTMENT OF ANATOMY AND NEUROBIOLOGY
DIVISION OF GRADUATE MEDICAL SCIENCES

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Program Mission

The mission of the Biomedical Forensic Sciences Program is to teach and model scientific rigor with high professional and academic standards as applied to the various disciplines of the forensic sciences in an effort to generate confident, competent and ethical future practitioners.

✦ Goals

1. To offer courses in a range of forensic science disciplines with focus on the forensic application of biology and chemistry.
2. To teach current techniques and procedures and provide a strong foundation for developing competency in the various forensic disciplines.
3. To provide students with opportunities for learning and research with focus on the application of critical thinking and data analysis to problem solving and experimental design.
4. To teach and model high standards of professional conduct and ethics.
5. To support program faculty in their various specialties through opportunities for continuing education, consultation, research and service to the forensic science community.

✦ Learning Outcomes

Students graduating with an MS Degree in Biomedical Forensic Sciences are expected to:

1. Have an in-depth understanding of the applications of biology and chemistry to the collection and analysis of forensic evidence.
2. Have an in-depth knowledge of specific laboratory processes and procedures, acquired from the program-required laboratory courses in two chosen disciplines of interest, that includes a practical demonstration of competency in the technical procedures, data interpretation and reporting of results.
3. Have an in-depth understanding of the interface between science and law and their ethical obligations related to examination of evidence and role as an expert witness.
4. Produce a written, laboratory-based thesis that demonstrates the application of the scientific process through use of critical thinking applied to project experimental design and data analysis.

5. Participate in a portfolio of professional development activities that include attendance at seminars, participation in regional and/or national forensic science meetings or internship activities.

Admission to the Program

Students admitted into the MS Program in Biomedical Forensic Sciences (BMFS) must begin their course of study in the fall semester. Students who wish to begin classes during the spring or summer semesters may do so as a non-degree student and apply for admission into the Program for the following fall. Priority for admission into the Program will be given to applicants whose completed applications are received by March 1st. Completed applications received after that date will be considered as they are received or until the desired enrollment has been attained. Applications received after August 1st will be considered for admission for the following academic year.

The credentials of each student applicant will be thoroughly reviewed by at least three members of the Graduate Student Committee or other designated full-time or part-time faculty before an applicant can be recommended for admission into the Program.

✦ Graduate Student Committee

The Graduate Student committee directs and oversees the Biomedical Forensic Sciences Program within the Department of Anatomy and Neurobiology. Its responsibilities include but are not limited to: admission decisions, policy-making, the establishment of academic requirements, the resolution of disputes, curriculum development, and the administration of certain programs affecting graduate students. The Committee consists of the Director of the Biomedical Forensic Sciences Program, the Associate Director of the Biomedical Forensic Sciences Program and at least one other full-time faculty member.

✦ Background Checks

While not required for entry into the BMFS Program, students should be aware that employment in a crime laboratory or law enforcement agency typically requires successful completion of an extensive personal background check. Such background checks may include a criminal history investigation, fingerprint check,

credit history investigation, medical or physical examination, color vision/visual acuity testing, polygraph examination and drug testing.

Program Advisors

Upon beginning the BMFS Program, each student will be assigned a Program advisor to assist them in selecting an appropriate course of study. Program advisors are full-time faculty members in the Biomedical Forensic Sciences Program and will have responsibilities such as approving and signing course registration forms, and providing guidance on course selection. Students should initiate a meeting with their Program advisor every semester.

Curriculum

The Program for the MS degree consists of the equivalent of approximately two years of fundamental coursework and scientific research, including laboratory-based coursework and at least three semesters of thesis planning, research and writing. Candidates are required to complete 38 credits (26 core coursework credits that includes 4 credits of directed research/thesis research, 4 lab credits, and 8 elective credits) at the graduate level and pass the BMFS competency examination. If desired, students may tailor their choice of elective courses towards one of three specified tracks: Forensic Chemistry-Toxicology, Forensic Biology-DNA Analysis or Forensic Medicine-Death Investigation.

✦ Core Courses

Students entering the program will be required to successfully complete each of the following core courses. The academic schedule for full-time, first year students will be structured. Electives, second year courses and part-time schedules will be selected by the student in consultation with their Program advisor.

- GMS FS 700 Criminal Law and Ethics
- GMS FS 701 Crime Scene Investigation
- GMS FS 702 Forensic Biology
- GMS FS 703 Forensic Chemistry
- GMS FS 707 Trace Evidence Analysis
- GMS FS 720 Molecular Biology of Forensic DNA Analysis

- GMS FS 800 Criminal Law II – Mock Court
- GMS FS 830 Forensic Toxicology
- GMS FS 870 Directed Research and Professionalism in Biomedical Forensic Sciences
- GMS FS 970 Thesis Research in Biomedical Forensic Sciences

✦ Laboratory Courses

All students are required to successfully complete a minimum of 2 of the following laboratory courses.

- GMS FS 704 Forensic Biology Laboratory
- GMS FS 708 Forensic Instrumental Analysis Laboratory
- GMS FS 721 Forensic DNA Analysis Laboratory
- GMS FS 831 Forensic Toxicology Laboratory

✦ Elective Courses

In addition to the core courses and laboratory courses, students will be required to complete their credit hours with the following elective courses (subject to change). Course selection will be carried out in consultation with the student's Program advisor.

- GMS FS 706 Pattern Evidence Analysis
- GMS FS 715 Forensic Pathology and Medicolegal Death Investigation
- GMS FS 713 Bloodstain Pattern Analysis
- GMS FS 730 Advanced Topics in Forensic DNA Analysis
- GMS FS 735 Analysis of Ignitable Liquids and Explosives
- GMS FS 740 Analysis of Controlled Substances
- GMS FS 803 Advanced Topics in Forensic Toxicology
- GMS FS 806 Advanced Crime Scene Investigation
- GMS FS 840 Case Practicum in Forensic Biology-DNA
- GMS FS 871 Internship in Biomedical Forensic Sciences
- GMS FS 971 Publication and Communication of Research in Biomedical Forensic Sciences

✦ Courses Outside of BMFS

Students may take up to 6 credits in relevant graduate courses offered outside of the BMFS Program. These courses must be offered from within Graduate Medical Sciences (GMS) or in rare circumstances, by another college within Boston University. The student's Program advisor must approve requests for elective courses from outside of the BMFS Program and final approval must be granted by the Program Director.

Relevant graduate level courses offered through BU's Forensic Anthropology Program or other programs within GMS *may* be approved for credit in the BMFS Program. Students should be aware that some of these courses require pre-requisites. Course selection will be carried out in consultation with the student's Program advisor. A list of pre-approved graduate courses offered outside of the BMFS Program can be found on the BMFS website (https://www.bumc.bu.edu/gms/academics/masters-programs/bmfs/curriculum/). Students with no prior coursework in statistics are encouraged to register for a graduate level statistics course offered through GMS. Please note that many careers in forensic science require completion of 2 to 3 credits of statistics (either undergraduate or graduate coursework) to be considered for employment.

Students *may* be granted approval to transfer academic credits for elective courses taken outside of BU if it is deemed that an equivalent and appropriate graduate level course has been successfully completed in the preceding five years at an accredited college or university, or if extenuating circumstances exist as determined by the Program Director. In order to obtain transfer credits, students must provide a course description, transcript and syllabus from the completed course. On-line courses and courses in which credits were applied toward completion of another degree will not be approved for transfer credit.

✦ Course Requirements for Specialized Tracks

Students may tailor their choice of elective courses toward one of three specified tracks (course space permitting): Forensic Biology-DNA Analysis, Forensic Chemistry-Toxicology or Forensic Medicine-Death Investigation. Successful completion of the designated track will appear on the student's transcript and each student who completes a specified track will receive a letter from a member of the

Graduate Student Committee stating that the necessary requirements for the designated track have been successfully completed.

Forensic Chemistry-Toxicology Track

- Forensic Instrumental Analysis Laboratory
- Forensic Toxicology Laboratory

AND a minimum of 6 credits selected from the following:

- Analysis of Controlled Substances (2 Credits)
- Advanced Topics in Forensic Toxicology (2 Credits)
- Analysis of Ignitable Liquids and Explosives (2 Credits)
- Publication & Communication of Research (2 Credits)
- Elementary Biostatistics GMS MS 700 (2 Credits)
- An approved chemistry/toxicology-related internship (2 Credits)
- An approved chemistry/toxicology-related course from outside the BMFS Program (see website for most updated list)

Forensic Medicine-Death Investigation Track

- Forensic Toxicology Laboratory
- Forensic Pathology and Medicolegal Death Investigation

AND a minimum of 6 credits selected from the following:

- Bloodstain Pattern Analysis (2 Credits)
- Advanced Topics in Crime Scene Investigation (2 Credits)
- Pattern Evidence Analysis (2 Credits)
- Advanced Topics in Forensic Toxicology (2 Credits)
- Publication & Communication of Research (2 Credits)
- Human Anatomy and Osteology GMS FA 712 (4 Credits)
- An approved forensic medicine/pathology or crime scene investigation-related internship (2 Credits)
- An approved forensic medicine or pathology-related course from outside the BMFS Program (see website for most updated list)

Forensic Biology-DNA Analysis Track

- Forensic Biology Laboratory
- Forensic DNA Analysis Laboratory

AND a minimum of 6 credits selected from the following:

- Advanced Topics in Forensic DNA Analysis (2 Credits)
- Case Practicum in Forensic Biology-DNA (2 Credits)
- Publication & Communication of Research (2 Credits)

- Forensic Pathology and Medicolegal Death Investigation (2 Credits)
- Elementary Biostatistics GMS MS 700 (2 Credits)
- Biochemistry/Cell Biology GMS BI 751 (6 Credits)
- Principles of Genetics and Genomics GMS GE 701 (4 Credits)
- An approved biology/DNA-related internship (2 Credits)
- An approved biology/DNA-related course from outside the BMFS Program (see website for most updated list)

Additionally, students striving to attain specialty track status must complete their thesis in a related area and complete one of the following capstone projects or activities in a relevant discipline:

- Presentation of research at a professional conference (if not used to fulfill the 6-credit coursework requirement)
- Working as a teaching or research assistant within the BMFS program
- A credit or non-credit internship (if not used to fulfill the 6-credit coursework requirement)
- Completion of a special project designated by the faculty

Students interested in working in the field of forensic DNA analysis should consult Section 5.4.1 of the Quality Assurance Standards for Forensic DNA Testing Labs (https://le.fbi.gov/file-repository/forensic-qas-070125.pdf/view effective July 1, 2025) set forth by the Federal Bureau of Investigation to ensure that all of the degree requirements for forensic DNA analysts have been successfully completed. The standard states, in part, that DNA analysts must have the following: "a bachelor's (or its equivalent) or an advanced degree in a biology-, chemistry-, or forensic science-related area and shall have successfully completed at least 9 credit hours of coursework in biology- or chemistry-related areas that provide an understanding of the foundation of DNA analysis. Additional requirements state that "any analyst hired/appointed/promoted or qualified on or after July 1, 2020, shall have successfully completed coursework covering statistics and/or population genetics." Many forensic DNA laboratories also require or highly recommend coursework in biochemistry, genetics, and molecular biology.

Students interested in working in the field of forensic toxicology and interested in seeking board certification should consult the requirements set by the American Board of Forensic Toxicology. Applicants must possess an earned degree in one of the natural/life sciences, from an institution acceptable to the Board (acceptable institutions are those accredited by Regional Accrediting Commissions recognized

by USOE). Applicants must have appropriate education in biology, chemistry, and pharmacology or toxicology. (An example of adequate undergraduate education in chemistry is satisfactory completion of at least 32 semester hours or 48 quarter hours of college level studies in chemistry including accredited courses in inorganic, organic, analytical and physical chemistry).

Students interested in working in the field of forensic drug analysis should consult a resource such as the SWGDRUG Recommendations to learn about analyst education and experience requirements. For example, effective June 27, 2024 new analysts shall have at least a bachelor's degree or equivalent in a natural/physical science as well as theoretical knowledge in foundational chemistry concepts, organic chemistry, and analytical chemistry, including quantitative analysis and instrumental analysis; and practical knowledge from in-person laboratory classes with experiences such as the preparation of solutions, reagents, chemical samples, etc., as well as exposure to analytical equipment and analysis of resulting data.

Further, some states (e.g. Texas) require that forensic analysts successfully obtain licensure to be employed as a forensic scientist and may have special requirements for meeting the educational requirements (e.g. statistics course).

✦ Course Descriptions

Core Courses

Criminal Law and Ethics (FS 700, 2 credits)

An overview of legal, ethical, and practical issues of forensic science, the impact of forensic science on the justice system and a discussion of traditional and emerging admissibility standards involving forensic science evidence is given. The curriculum will include a description of the roles played by law enforcement, attorneys and forensic scientists, as well as discussion of ethics and professional standards for the practice of criminalistics in various forensic disciplines.

Crime Scene Investigation (FS 701, 3 credits)

This combination hands-on and lecture-based course will provide students with an in-depth review of crime scene assessment and management. Methods for

identifying, documenting, collecting and packaging physical evidence from various types of crime scenes will be discussed. A hands-on component will be employed in areas such as crime scene sketching, photography and pattern evidence collection.

Forensic Biology (FS 702, 3 credits)

This lecture-based course will introduce students to biological aspects of forensic evidence including biochemical and physical attributes of blood and other body fluids. Common methods of body fluid identification utilized in forensic laboratories will be discussed at length. Other topics include general criminalistics practices for thorough evidence examination, screening, documentation and report writing.

Forensic Chemistry (FS 703, 3 credits)

This lecture-based course will provide an introduction to forensic chemistry and will expose students to chemical principles, sample preparation, extraction and instrumental techniques associated with the field, with particular emphasis on the analysis of controlled substances, gunshot residues, fire debris and explosives. A review of organic and analytical chemistry as they relate to forensic chemical analysis will also be discussed.

Trace Evidence Analysis (FS 707, 3 credits)

This lecture-based course will provide an overview of the principles and concepts on which trace evidence analysis is based. Proper collection, preservation, identification and comparison of items such as glass, paint, hairs and fibers using standard methods and instrumentation used in crime laboratories as well as their interpretive significance will be discussed.

Molecular Biology of Forensic DNA Analysis (FS 720, 3 credits)

This lecture-based course will discuss the theory and application of human genetics and molecular biology to the testing of biological evidence. DNA structure

and organization of the human genome and types of genetic variation occurring in humans will be covered. Other topics include the history of DNA analysis and current PCR based methods for testing of autosomal STR loci, Y chromosome STR loci and mitochondrial DNA. Lecture material will also cover commonly encountered artifacts in PCR testing, DNA profile interpretation and statistical analysis of results.

Criminal Law II – Mock Court (FS 800, 2 credits)

This interactive course builds upon the material discussed in Criminal Law and Ethics regarding the criminal trial process, the role of the forensic witness and the presentation of scientific testimony and physical evidence in court. Students will actively participate in presenting testimony as well as critiquing the performance of others in a mock court setting. Instructors may utilize reports and projects prepared in other courses to provide the subject matter for the students' testimony. *Prerequisite: Criminal Law and Ethics*

Forensic Toxicology (FS 830, 3 credits)

This lecture-based course will provide an overview of the pharmacodynamics and pharmacokinetics of common drugs of interest, including ethanol, to the forensic toxicologist. An emphasis will be placed on drug classifications and an understanding of the common signs and symptoms that are associated with them. Students will acquire knowledge regarding appropriate matrix selection and the various methodologies used to identify and quantify the drugs contained within them as well as the challenges involved in interpreting these results.

Directed Research and Professionalism in Biomedical Forensic Sciences (FS 870, 2 credits)

Students will register for this course in preparation for conducting their thesis research. With direction from the student's thesis research committee, the student will investigate their thesis topic, develop a research plan including an outline of the project, become familiar with quality control and quality assurance issues and begin data collection. As part of this course, students will be required to attend

several instructional and discussion sessions throughout the semester and must attend at least one student thesis presentation day prior to the semester in which they plan to graduate and a minimum of twelve designated professional/scientific seminars.

Research in Biomedical Forensic Sciences (FS 970, 2 credits)

Each student must complete an independent program of scientific research, the results of which will be incorporated into a laboratory-based thesis of publishable quality and an oral presentation in a public forum. The thesis clearly states a hypothesis or scientific question and presents the author's findings to support the stated proposition. Thesis topics are developed in conjunction with a research committee consisting of faculty members and/or other qualified individuals. Registration for this course should be during the semester in which the student anticipates graduation from the program.

Elective Courses

Pattern Evidence Analysis (FS 706, 2 credits)

This combination lecture and laboratory-based course will provide students with an overview of various types of pattern evidence with an emphasis on the systematic approaches to pattern evidence comparison and analysis. The history of fingerprint identification, fingerprint processing and comparison techniques, footwear and tire impression analysis, toolmark analysis, and the importance of photography in pattern evidence documentation will be discussed. Development of pattern evidence using mechanical, chemical and visual techniques is incorporated.

Bloodstain Pattern Analysis (FS 713, 2 credits)

This lecture and laboratory-based course will provide students with fundamental knowledge in the area of bloodstain pattern analysis including the scientific principles and practical applications of bloodstain pattern analysis to forensic casework. The procedures and methods for recognition, documentation and evaluation of bloodstain patterns will be covered. Additionally, the principles of

physics, blood dynamics and the geometric significance of bloodstain patterns will be explored. *Prerequisite (suggested): Crime Scene Investigation*

Forensic Pathology and Medicolegal Death Investigation (FS 715, 2 credits)

This lecture-based course will provide the student with an overview of the role of the medical examiner and the basic principles of medicolegal death investigations. Specific lectures will cover autopsy procedures in the investigation of gunshot wounds, sharp and blunt trauma, drowning, asphyxia, child deaths, motor vehicle accidents and time since death determination. A general knowledge of anatomy is recommended prior to enrollment.

Advanced Topics in DNA Analysis (FS 730, 2 credits)

This course will build on topics presented in the Forensic DNA Analysis course and laboratory. Students will gain experience interpreting STR data from compromised and mixed source samples and will understand the theory behind DNA profile frequency calculations. An in-depth review of the techniques and methodology used in a forensic DNA laboratory and the roles that accreditation, validation and quality assurance play will be discussed. *Concurrent/Prerequisites: Molecular Biology of Forensic DNA Analysis, Forensic DNA Analysis Laboratory*

Analysis of Ignitable Liquids and Explosives (FS 735, 2 credits)

This lecture and laboratory-based course will expose students to an in-depth treatment of the analysis of ignitable liquids and explosives. Practical and theoretical aspects of qualitative and quantitative measurements of ignitable liquids, explosives and their residues using current methodologies such as GC-MS, FTIR, SEM-EDS and LC-MS will be discussed. *Prerequisite: Forensic Chemistry, Forensic Instrumental Analysis Laboratory*

Analysis of Controlled Substances (FS 740, 2 credits)

This lecture-based course will provide information on the important methods of analysis of most commonly abused illicit substances including marijuana, cocaine, opiates, hallucinogens, amphetamines and novel psychoactive substances. Additionally, the production, distribution and history of these commonly abused drugs will be covered. Laboratory accreditation requirements will also be discussed. *Concurrent/Prerequisite: Forensic Chemistry*

Advanced Topics in Forensic Toxicology (FS 803, 2 credits)

This lecture and laboratory-based course will provide students with an understanding of advanced forensic toxicology topics and analytical applications. Lecture topics will include but are not limited to covering in depth pharmacokinetics and pharmacodynamics of frequently encountered drugs involved in human impairment, and post-mortem and forensic drug testing. ANSI/ASB Standards and technical reports published by the toxicology consensus body will be applied where applicable.

Advanced Crime Scene Investigation (FS 806, 2 credits)

This hands-on and lecture-based course will provide students with methods and underlying theories related to specialized aspects of crime scene processing. Topics covered will include techniques and principles utilized in search and recovery of human remains, major crime scene management, advanced mapping techniques and the processing of mass disaster investigations. Students will gain practical experience collecting fingerprint exemplars and processing a realistic mock crime scene. *Prerequisite: Crime Scene Investigation*

Case Practicum in Forensic Biology-DNA (FS 840, 2 credits)

This laboratory course will provide students an opportunity to independently perform evidence assessment and testing for various types of biological evidence and conduct a technical peer review in a mock forensic case setting. Advanced biological screening and DNA analysis techniques will be employed, and students

will become practiced in the analysis of complex DNA profiles. *Prerequisites: DNA Analysis Laboratory, Forensic Biology Laboratory*

Internship in Biomedical Forensic Sciences (FS 871, 2 Credits)

An internship in a forensic setting is encouraged and may be approved for academic credit depending on the number of hours and the nature of the work completed during the internship. Registration for this course must be approved by the student's Program advisor and the faculty member serving as the BMFS Internship Coordinator. A completed evaluation from the internship supervisor describing the nature of the work completed and the quality of the student's performance will be required. In addition, the student will be required to write a summary of their internship experiences and responsibilities in journal article format. With prior approval from the student's thesis advisors and the internship site supervisor, laboratory-based research completed during an internship may be used as the basis of the student's thesis.

Publication and Communication of Research in Biomedical Forensic Sciences (FS 971, 2 credits)

Following the completion or near completion of an independent program of research and writing of the associated thesis, students are expected to prepare their graduate research into journal format and submit for publication. Further, students must submit their research for presentation at a regional, national or international conference. Registration for this course should be during the semester in which the student anticipates graduation from the program and requires pre-approval from the student's thesis advisor.

Laboratory Courses

Forensic Biology Laboratory (FS 704, 2 credits)

This laboratory course will give students an opportunity to apply the principles of criminalistics and forensic biology to actual samples. Techniques utilized will include chemical screening assays, detection with ALS, methods used to confirm the presence of specific biological material(s), microcrystalline tests, catalytic color

tests, antigen-antibody interactions, gel diffusion and microscopic identification of cellular material. *Concurrent/Prerequisite: Forensic Biology*

Forensic Instrumental Analysis Laboratory (FS 708, 2 credits)

This laboratory course will provide experiential based approaches utilizing gas chromatography, liquid chromatography, mass spectrometry, microscopy, Fourier transform infrared spectroscopy and other instrumental techniques commonly utilized in forensic laboratories. Detailed sample preparation and analysis methods used by forensic scientists will focus on ignitable liquids, explosive residues, gunshot residues and seized drugs. Techniques taught are commonly sought after by employers in Forensic Chemistry disciplines. *Concurrent/Prerequisite: Forensic Chemistry or approval by the Course Director*

Forensic DNA Analysis Laboratory (FS 721, 2 credits)

This laboratory course will provide theory and practice in procedures used in forensic DNA analysis. Sessions will include use of several DNA extraction techniques, clean technique for contamination prevention, use of real time PCR for human DNA quantitation, PCR amplification of STR loci, capillary electrophoresis and DNA profile analysis. *Concurrent/Prerequisite: Molecular Biology of Forensic DNA Analysis*

Forensic Toxicology Laboratory (FS 831, 2 credits)

This laboratory course will provide an overview of the hands-on techniques used in forensic toxicology laboratories including the use of chromatography and mass spectrometry for the identification and quantitation of small molecules in biological matrices. Students will learn the essential aspects of biological evidence handling and good laboratory practices to prepare samples for toxicological analysis. Students will also examine data from forensic toxicological analysis, draw conclusions and reporting based on the results obtained. *Concurrent/Prerequisite: Forensic Toxicology*

Refer to the official University schedule for current offerings.
Some courses may not be offered every year.

Academic Policies and Procedures

All students should familiarize themselves with the general regulations that apply to all students in Graduate Medical Sciences, particularly with respect to federal financial aid guidelines, as well as with the more specific requirements for the BMFS Program found within this document.

✦ Grades

To receive credit towards graduation in any course taken as part of the BMFS Program, students must receive a grade of B- or better. Grades of C+ or lower are considered failures at the graduate level. If a failing grade is received in a core course, the student is required to re-register for that course the next time it is offered and successfully complete it (i.e. receive a grade of B- or better) in order to be eligible to graduate from the Program.

When the work of a course has not been completed within the semester of registration due to extenuating circumstances, the grade of "I" may be assigned at the discretion of the instructor. *A grade of "I" can only be given if a student is doing passing work (i.e. a grade of B- or better).* This automatically becomes a grade of "F" unless the course work is completed within one year or prior arrangements have been made and agreed upon with the course instructor.

✦ Academic Probation

In the event that a student receives a single failing grade of C+ or lower, he or she will be notified in writing and will automatically be placed on academic probation at the program level for the following semester. While on academic probation, students will be required to consult with and receive approval from their program advisor for all curriculum decisions.

The probationary period may be extended to two or more semesters at the discretion of the student's program advisor. Please note that academic probation may result in the extension of the original anticipated graduation date.

The following regulations and restrictions apply during the probationary period:

- The student is required to meet with their program advisor prior to the start of the ensuing semester, and again before the deadline to drop a course with

a “W” in order to assess progress; it is the responsibility of the student to initiate these meetings
- The student must prioritize registration for *core* courses that are offered during the probationary period; registration for elective courses is an option only when all the core courses offered in that semester have been successfully completed or are in progress
- The student may not be allowed to register for limited enrollment laboratory courses, Directed Research or Research, except at the discretion of their program advisor
- The student will not be allowed to engage in thesis research, except at the discretion of their thesis advisor

If the occurrence of two failing grades takes place during one semester, the probationary period will not apply and the student will be dismissed from the Program.

✦ Academic Dismissal

If a grade of C+ or lower occurs in a total of two or more courses , a student will be automatically dismissed from the Program.

Upon receiving written notice of academic dismissal and *after* meeting with their Program advisor, the student has the right to petition the dismissal in writing to the BMFS Graduate Student Committee. Only those students with extenuating circumstances will be considered for re-admission. If a petition to the Graduate Student Committee is unsuccessful, the student is entitled to an additional level of appeal through the Associate Provost in the GMS Office.

Seminars and Safety Training

✦ Orientation

Every incoming student is required to attend a GMS and BMFS Program Orientation, typically held just before the Fall semester begins. Important information regarding BU and GMS policies, health insurance requirements, parking/transportation and other campus resources is disseminated as well as BMFS-specific requirements and expectations. Students will meet with their

program advisor during Orientation to make any changes to their course schedule. An additional BMFS Orientation session is held later in the semester that covers additional academic policies and student services, and introduces the thesis process.

✦ Scientific Reading and Thesis Seminars

As part of the Directed Research and Professionalism course in the BMFS Program, students will receive introductory information on scientific reading and thesis preparation, in addition to other relevant topics such as job interviewing skills, that will be prepared and/or presented by a member of the Graduate Student Committee. The purpose is to familiarize the student with reading advanced scientific literature, improve the student's skills of understanding and critically evaluating the research publications in their field of study and to acquaint the student with the thesis process. In addition, each student is required to attend at least one student thesis presentation event prior to the semester in which he or she is graduating; this requirement is implemented in conjunction with the Research in Biomedical Forensic Sciences course (GMS FS 970).

✦ BMFS Seminar Series

The BMFS Program in conjunction with the Boston University Forensic Science Society (BUFSS) oversees a graduate seminar series featuring forensic practitioners, researchers and students. The seminars are typically held monthly during the fall and spring semesters and aim to make students aware of the variety of career paths, new developments and current research in forensic science. It is a requirement for students enrolled in the BMFS program to attend a *minimum of twelve* BUFSS (or other designated) seminars prior to graduation; this requirement is implemented in conjunction with the Directed Research and Professionalism in Biomedical Forensic Sciences course (GMS FS 870).

✦ Safety Training

Every student at BU School of Medicine is required to complete a Laboratory Safety and Hazardous Waste Management Training session at the time of enrollment in the Program; a refresher training must be completed every year until graduation. The trainings are provided by the Office of Environmental Health and Safety, and can be completed online. Laboratory Safety and Hazardous Waste Management Training, at a minimum, is required before performing any work in

the lab and is required annually thereafter; multiple additional safety trainings (e.g. Bloodborne Pathogens) may be necessary depending on the nature of the student's lab activities. It is the responsibility of the student to successfully complete the appropriate trainings and provide verification of completion to their lab instructor and/or thesis advisor. Students engaging in independent lab research are also required to read the BMFS Chemical Hygiene Plan and BioSafety Manual.

Competency Examinations

✦ General Competency Exam

Near the completion of their coursework, each student will be required to pass a General Competency Examination that will cover topics from the core courses completed during the Program. An overall passing grade of 80% (equivalent to a B- or better) is required in order to graduate. The exam will be administered annually following the end of the spring semester. Students who fail the exam will be required to re-take the exam when it is offered during the Summer semester, prior to commencing thesis-related laboratory research. Successful completion of the general competency exam is required to begin independent research. Students who fail to pass the competency exam after 2 attempts must meet with the Graduate Student Committee to discuss and evaluate their academic progress. Failure to successfully pass the exam on the 3rd attempt will result in dismissal from the program.

✦ Standardized Forensic Science Exam

The Forensic Science Assessment Test (FSAT) is a standardized exam developed by the American Board of Criminalistics (ABC) for students completing an academic forensic science program. Students may wish to use the test to compare their knowledge to other individuals in their peer group or to show prospective employers their level of forensic science knowledge. The FSAT will be offered to interested students up to twice a year in accordance with the dates set by ABC. This exam is not required for graduation from the BMFS program, but students interested in pursuing a forensic casework career are strongly encouraged to take it.

Thesis Research

To complete the Master's Degree in Biomedical Forensic Sciences each student must complete a program of laboratory-based research, the results of which will be incorporated into a thesis of publishable quality. In addition, each student is required to present the results of their research orally to their research committee, the faculty and other student attendees. The thesis presentations will be scheduled toward the end of the semester in which the student plans to graduate (typically during the week leading up to the thesis due date) and will be part of the overall thesis evaluation.

✦ Research Committee

Toward the end of the second semester in the Program, each full-time student will be asked to state their area of interest and shall be assigned a full-time faculty member to serve on their Research Committee and guide the student through the thesis process. The Research Committee will consist of one full time BMFS faculty member, one individual with a MS or doctoral degree who may or may not be associated with the program but is knowledgeable in the relevant area of research, and a third member who is knowledgeable in the area of research and has a minimum of a BA or BS degree. At least one of the members of the committee must be external to the Department of Anatomy and Neurobiology. The student's Program advisor may or may not be part of the Research Committee.

In order to begin independent research with a BMFS faculty member, the student must demonstrated general proficiency in forensic science by successfully completing the program's General Competency Exam.

One of the Research Committee members will serve as the primary thesis advisor (principal investigator). The primary thesis advisor and at least one other member of the Research Committee will be designated as signatories for the written thesis. Per BU policy, if any signing member of the committee is not a full-time GMS faculty member, the student will obtain a one-day special appointment for that individual through the Registrar's office to enable the committee member to sign the signature page of the final approved thesis.

The student will correspond and/or meet with their Research Committee as the student begins planning and working on their research. The duties of the Research

Committee are to consider the student's research plan and be available for providing assistance and consultation during the research and writing process. The Research Committee will evaluate the completed thesis and determine whether it meets the standards required for the degree.

Communication with the Research Committee and attention to detail can contribute significantly to the process of executing the research and writing of the thesis. The student is encouraged to bring additional thesis questions to their primary thesis advisor and the other Research Committee members.

✦ Thesis Timeline

The process of conducting independent research, writing and reviewing a thesis requires **a minimum of three semesters or 8 to 10 months to complete**. This will include planning and implementing the research and writing the thesis. The thesis is not a term paper, book review or an in-depth laboratory report; rather, the thesis will clearly state a hypothesis or scientific question that is being actively investigated through research as well as the results and conclusions of the research.

A minimum of four credit hours will be devoted to the thesis research. Each student will register for a semester of Directed Research and Professionalism (GMS FS 870, 2 credits) during which time the student will meet with their committee, produce and understand the outline of the research plan and begin the project. The student is encouraged to meet regularly with their Research Committee during this semester.

The student will register for Research (GMS FS 970, 2 credits) in the semester in which the student anticipates graduation from the program. A "draft" of the thesis represents the *complete* and *proofread* work of the student, which is presented to the advisors for review and comment. The advisor(s) and the student may have previously worked on and revised individual sections of the document in preparation of the draft. The completed draft of the thesis is expected to be submitted to the primary advisor at least **8-12 weeks prior** to the thesis due date set by the registrar's office (consult primary advisor for exact dates). The student should expect to modify the draft several times over the course of the semester prior to receiving approval to send the thesis to the other Research Committee members for review. The revised draft of the thesis is expected to be given to the

secondary advisor at least **4 weeks prior** to the final deadline set by the registrar's office (consult secondary advisor for exact dates). The student should consider that the number of drafts or requested changes required for final approval may be extensive and will differ from project to project.

It is the student's responsibility to communicate with their thesis advisor and committee members through all stages of the research process as well as to obtain the deadlines for graduation from the registrar's office and to meet these deadlines. Extensions are **not** provided when students do not meet graduate school deadlines or when they fail to take personal responsibility for their research projects. It is highly recommended that students frequently communicate with their advisors regarding their progress as it relates to their anticipated graduation date. It is the responsibility of the student to schedule and meet with the Registrar or her designees to ensure the use of proper formatting in advance of all deadlines. **Failure to meet the required deadlines will result in the student being required to register as a continuing student and pay the associated tuition fee for an additional semester.**

✦ Additional Thesis Requirements

The complete set of formal requirements for a thesis is given in material that is provided by Graduate Medical Sciences (*Research Guide for Writers of Theses and Dissertations*, prepared by Boston University's Mugar Memorial Library). Among other requirements are the following:

1. All work must be cited using the format prescribed by the Journal of Forensic Sciences. All statements and facts that are not the student's own conclusions **must** be cited.
2. The majority of citations **must** be from peer-reviewed journal articles. Textbook and website citations should be limited.
3. Students must incorporate a minimum of **30 references** into their overall work. The body of the thesis needs to be **a minimum of 45 double spaced pages in length** not including the bibliography, and typically does not exceed 75 pages. Page lengths falling outside of this range must be approved the student's Research Committee.
4. The Division of Graduate Medical Sciences requires that all capstone, plagiarism detection software. A final Turnitin report must be evaluated

and approved by the student's primary research advisor prior to thesis

this policy visit: https://www.bumc.bu.edu/gms/academics/masters-program-research-thesis-capstone-and-dissertation-information/

Internships

Students are encouraged to pursue an internship in a forensic setting, however, an internship is not required for graduation. Students are responsible for locating their internship with the assistance of the faculty member serving as the BMFS Internship Coordinator. *All efforts to obtain a forensic internship while in the BMFS Program should be made in conjunction with a full-time faculty member.*

With prior approval from the student's primary thesis advisor and the internship site supervisor, work completed at an internship may be used as the basis of the student's thesis. Additional thesis work conducted after review of the internship data by the student's thesis advisor may be required for thesis completion.

Students may receive 2 credits for the internship course when the student registers for FS871 and the course requirements are met. In most cases, a student must complete a minimum of 240 hours at the internship site and complete a research-based or data-driven project to qualify for academic credit. A written description of the internship duties/responsibilities and a personal communication between the Internship Coordinator and the proposed internship supervisor will be required before approval is granted.

For course credit at the end of the internship, a completed evaluation from the internship supervisor describing the nature of the work completed and the quality of the student's performance will be required. Additionally, the student is required to write an 8-10 page summary of their internship experiences and responsibilities. The paper must be written in journal article format and should include a description of any skills or knowledge gained during the internship and the results of any experiments or research conducted.

The basis for evaluation (grade) for the internship will be the written paper, which will be graded by the Internship Coordinator, as well as input from the internship supervisor. It is the responsibility of the student to make sure the evaluation form and the written paper are submitted a minimum of 2 weeks prior to the completion

of the semester in which the credits for the internship would be awarded in order for a grade to be assigned.

Professional Organizations and Scientific Meetings

Professional organizations provide ideal venues for exchanging ideas and information within the forensic sciences. Students are strongly encouraged to join the American Academy of Forensic Sciences (AAFS) as well as other forensic professional organizations such as the International Association for Identification (IAI) or the Northeastern Association of Forensic Scientists (NEAFS). All membership and registration fees are the responsibility of the student.

Forensic professionals convene at scientific meetings, such as the AAFS annual meeting in February, to present the most current research and information in a variety of forensic disciplines. These meetings provide valuable learning and networking experiences to students who will soon be entering the forensic profession as well as to seasoned forensic practitioners. The BMFS Program promotes attendance at scientific meetings by offering nominal travel grants to those students who have been asked to present their research by their advisor.

✦ Delta Delta Epsilon

Delta Delta Epsilon (DDE) is an international honor society that is dedicated to stimulating academic achievement, promoting community understanding, and advancing the fields of forensic science wherever possible. Membership is limited to students within the disciplines of forensic science who meet high academic criteria and are dedicated to the mission of Delta Delta Epsilon.

BMFS students entering their second year of the Program will be eligible for membership in the Nu Chapter of DDE if they have:

- Successfully completed at least 50% of the credits required for the degree
- A minimum cumulative earned GPA of 3.7 (values of 3.65-3.69 will be rounded up)

Student Conduct

All students are expected to conduct themselves professionally and represent the BMFS program professionally at all times. The nature of the material explored in

this program is inherently delicate and sometimes graphic. Students are expected to be sophisticated and discreet in their inevitable conversations about programmatic activities, and mindful of their location when such conversations arise. Human samples, photographs depicting crime scenes, weapons, explosive devices, controlled substances or other sensitive materials are never to be abused or displayed in an inappropriate manner, nor should they be posted online or shared through social media platforms in any form. Similarly, lecture slides/recordings and other work products must not be posted or shared unless explicit permission by the faculty member or content creator has been given.

Students are expected to act in a collegial manner and treat all members of the

includes all forms of communication, both in the classroom and outside, as well as dress, email etiquette and respectful behavior toward others. Issues involving conduct or professionalism are serious and will be addressed in a meeting between the student and their program advisor and/or program director or associate director.

While enrolled in the BMFS program, it is expected that all students will adhere to the BU Code of Student Responsibilities http://www.bu.edu/dos/policies/student-responsibilities/, the GMS Student Code of Conduct and Academic Code of Conduct https://www.bumc.bu.edu/gms/about/atge/ and the Department of Anatomy & Neurobiology Policy on the Appropriate Treatment of Faculty, Staff, Students and Trainees https://www.bumc.bu.edu/anatneuro/student-resources/.

Student Resources and Information

✦ Account Information and Grades

MyBU is an online resource available for all BU students. The website contains useful information for incoming students and continuing students including academic information, job listings and financial aid information. MyBU also allows enrolled students to obtain their personal records at BU, including schedules, transcripts and university class schedule information, as well as access to Degree Progress, a web-based interface that allows students to track their academic program progress from matriculation through graduation.
https://mybustudent.bu.edu/

✦ Conflict Resolution

Students should bring any program related issues or concerns that arise to the attention of an appropriate BMFS faculty member, advisor or administrator. If a satisfactory resolution is not reached, the complaint should be brought in writing to the attention of the BMFS Program Director or Associate Director. (If the complaint involves the Program Director, the student should see the Chair of the Anatomy and Neurobiology Department who will designate a representative to assist the student). (If the complaint involves the Associate Director, the student should see the BMFS Program Director). If the issue is related to perceived discrimination, refer to the BUSM policy found in the Academic Policies and Procedures provided by Graduate Medical Sciences (GMS). If a student is not satisfied with the resolution offered by the BMFS program or GMS, the student has the right to contact FEPAC with their complaint. https://www.aafs.org/fepac/standards-resources-and-forms

✦ Financial Aid

All tuition and financial aid matters should be directed to the GMS Student Financial Support Office. https://www.bumc.bu.edu/osfs/applying-for-aid/gms/

✦ Full-Time Certification

A student registered for fewer than 12 credits but otherwise engaged in full-time study may be certified as a full-time student if the total number of hours per week spent toward meeting degree requirements is approximately 35 (*e.g.* class preparation and attendance, participating in pertinent research or gaining competence in the field of study through an approved internship). Such students must submit the Certified Full-Time Form to the GMS registrar during the official registration period. This form is only complete with the approval and signature of the faculty advisor and/or program director. Full-time status using the Certified Full-Time form is generally limited to 2 semesters.

✦ Leaves of Absence

Students may be granted a leave of absence for up to two semesters, during which time no degree requirements can be completed and registration is not required.

All requests for a leave of absence must be submitted in writing to and approved by the student's program advisor/director and the Associate Provost of the Division of Graduate Medical Sciences. The period of an authorized leave of absence is counted as part of the total time allowed for completion of the degree requirements. Students without an approved leave of absence who are not registered during the Fall or Spring semester will be withdrawn from the program; a minimum of 2 years must elapse before readmission will be considered.

Personal Security

The BUMC Public Safety Department is staffed 24 hours a day, 7 days a week and is responsible for providing faculty and students a safe and secure environment. The Public Safety Department will provide vehicular or pedestrian escorts to the garages, lots and surrounding medical center buildings during night and weekend hours upon request. Service calls for security, facilities, escorts and emergency response can be made at (617) 358-4444. Blue metal emergency call boxes are easily identifiable at a variety of locations within and around the perimeter of the medical center. https://www.bu.edu/publicsafety/

BU Links

Biomedical Forensic Sciences Program (BMFS)
http://www.bumc.bu.edu/gms/bmfs/

Boston University Forensic Science Society (BUFSS)
https://www.instagram.com/buforensics/

Boston University Shuttle
https://www.bu.edu/transportation/bus

BUMC Alumni Medical Library
http://medlib.bu.edu

Division of Graduate Medical Sciences (GMS) Student Handbook
https://www.bumc.bu.edu/gms/academics/policies-procedures-handbook/

GMS Academic Policies and Procedures
https://www.bumc.bu.edu/gms/about/atge/

Educational Resource Center
http://www.bu.edu/erc

Financial Assistance
https://www.bumc.bu.edu/osfs/

Graduate Medical Sciences Student Organization (GMSSO)
https://www.bumc.bu.edu/gms/students/student-life/organization/gmsso

International Students and Scholars Office
http://www.bu.edu/isso

Minority and International Scientists Organization
http://www.bumc.bu.edu/gms/students/student-life/miso/

Office of Disability Services
http://www.bu.edu/disability

Student Employment Office
http://www.bu.edu/seo

Student Health Services
http://www.bu.edu/shs/

✦ Additional Links

American Academy of Forensic Sciences
http://www.aafs.org

American Board of Criminalistics
http://www.criminalistics.com

American Board of Forensic Toxicology
https://www.abft.org

FBI Quality Assurance Standards for Forensic DNA Testing Laboratories
https://le.fbi.gov/file-repository/forensic-qas-070125.pdf/view

International Association for Identification
http://www.theiai.org

Northeastern Association of Forensic Scientists
http://www.neafs.org

Society of Forensic Toxicologists
http://www.soft-tox.org

SWGDAM
https://www.swgdam.org

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