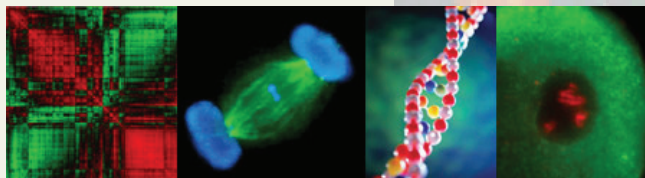


Genetics and Genomics

Welcome to the Program in Genetics and Genomics

It is an exciting time to study genetics and genomics! This field is transforming the way modern biological research is conducted and the way human health is understood. As a Genetics and Genomics Ph.D. graduate, you will be equipped to contribute to this biomedical revolution. Students in Genetics and Genomics gain interdisciplinary expertise that spans from hypothesis-testing genetic approaches to hypothesis-generating genomic approaches and they gain skills that will enable them to advance the molecular, clinical, and computational sciences.



While students conduct their dissertation research, they are expected to actively participate in program seminar series, lab meetings, and other research activities of their thesis lab. Students are also encouraged to attend the Genome Science Institute seminars by prominent scientists from other institutions and BU.

Students have an opportunity to meet with visiting seminar speakers through organized student lunch forums. Students and post-docs also participate in a Research in Progress Seminar Series and Journal Club to provide trainees with

an opportunity to share their research findings and learn more about the research in the Genetics and Genomics community.

Program Highlights

The Graduate Program in Genetics and Genomics prepares trainees not only to apply the approaches of genetics and genomics to biomedical research but also to function as active members of the scientific community who can clearly communicate ideas, critically evaluate biomedical research, and mentor others in scientific scholarship. Our complementary set of degree requirements, consisting of traditional coursework, journal clubs, seminar series, and a research proposal-based qualifying examination will enable you to achieve these goals.

During the first two years of the program, students complete the coursework portion of the degree requirements. The courses include core courses in Genetics and Genomics (Principles of Genetics & Genomics and Advanced Topics in Genetics & Genomics), related core courses from sister programs (Biochemistry, Cell Biology, and Molecular Biology), professional development courses (Colloquium, Ethical Issues), and a wide array of electives. Details about the courses are available at <http://www.bumc.bu.edu/gpgg/gpgg-core-courses/>.

Ph.D. candidates participate in a minimum of three laboratory rotations to ensure exposure to a variety of scientific approaches. These rotations will last ten weeks each, with one during the fall semester and two during the spring semester. Due to time constraints, M.D./Ph.D. students will have the option to join a dissertation laboratory after two rotations.

Upon successful completion of the core courses, each Ph.D. student must serve as a Teaching Assistant (TA) for one semester in one of the Program's courses. The TA leads discussion and review sections as well as supports exam and homework grading. Ph.D. students must participate in the TA training workshop. After completing the required TA experience, students who wish to further develop their teaching repertoire will be able to do so.

Upon passing the qualifying examination, Ph.D. students focus on their dissertation research. This research will be conducted under the supervision of their chosen graduate advisor. The student will be responsible for conducting a rigorous, in-depth program of investigation into an area of research that is within the scope of their graduate advisor's expertise and interests.

Research Interests

The scientific advances that led to the sequencing of the human genome underscore the need to combine the scholarly approaches derived from classical fields such as genetics with those rapidly developing fields in the arena of genomics. Indeed, the National Human Genome Research Institute (NHGRI) and the National Institute of Environmental Health Sciences (NIEHS) have identified a national need to develop institutional training programs in the scientific disciplines at the interface of biological and genomic sciences. The ultimate objective of these efforts is to train scientists to take full advantage of the publicly available genomic data to make rapid and ingenious advances in biomedical research. Bringing these combined approaches to the practice of modern science and medicine will have an enormous impact on shaping the development of new fields. Before this can occur, however, the specialized disciplines need to be introduced into a framework in which they are juxtaposed. Scientists with expertise in genetic methods, molecular problems, and computational approaches must interact in productive ways and train a new generation of scientists to utilize cross-disciplinary tools in scientific research to improve biological understanding of human health.

The Ph.D. Program in Genetics and Genomics brings scientists in these fields together in this intellectually rigorous endeavor. The program catalyzes collaborations among faculty members with seemingly disparate research interests and provides opportunities for students to take part in this multidisciplinary discovery.

Career Paths

Eight students have graduated from our program with the Ph.D. degree since the first class matriculated in 2004.

Recent graduates have gone on to post-doctoral fellowships at leading research institutions including Harvard University, Roswell Park Cancer Institute, Geisinger Medical Center, and Boston University.

Program graduates have also gone into industry at leading firms including Arda Corporation and Intelligent Medical Devices.

Other recent graduates have launched successful careers in communications, with one serving as Director of Communications for Coriell Institute for Medical Research, a position obtained directly out of graduate school.

Boston and Boston University Community

Boston University is located in the heart of Boston- one of the nation's most dynamic and vibrant cities. Boston is a hub of cosmopolitan style, intellectual inquiry, and cultural opportunity. Boston is also an accessible city and the "T"- Boston's network of subways, trolleys, and buses- makes it easy to explore the history and culture of the city.

Boston University is an independent, coeducational, nonsectarian university housed on the Charles River and the Medical Center campuses, which are located 3 miles from one another in Boston. Boston University's academic diversity reflects one of the largest bodies of scholars in the world. Its sixteen schools and colleges provide students with the advantages of a large contemporary educational complex, including opportunities to conduct interdisciplinary research, meet students from other schools and colleges, and participate in a wide array of extracurricular activities and sports.

Boston University is home to nearly 500 social, athletic and artistic organizations. The South End Fitness Center, located near the Medical Campus, and the Boston University Fitness and Recreation Center on the Charles River Campus, provide superb state-of-the-art facilities for exercise, fitness and wellness programs. BU competes in 23 NCAA Division I varsity sports and our Terriers were the 2009 NCAA Men's Hockey Champions.

Boston and the surrounding areas offer a rich selection of cultural and recreational activities, including museums, music and theater, major league sports teams, and skiing, to name a few. Close by are Cape Cod, the White Mountains, and the picturesque New England countryside.

Student Life

Boston University Medical Campus, home to the Schools of Medicine, Dentistry, and Public Health, is located in the historic South End neighborhood of Boston. Many streets in the area have elegant Victorian brownstone buildings and homes built in the 1800s. The South End has one of the most diverse populations in the city. It is a short walk to shops, restaurants and a thriving arts community. Boston University Medical Campus is linked to its Charles River Campus by The Bus, a free shuttle service. GMS students take advantage of the tremendous academic and extracurricular opportunities on both campuses.



Doctoral students become part of our diverse community through the Division of Graduate Medical Sciences and the Graduate Medical Sciences Student Organization (GMSSO), a well-organized student group representing graduate students from our 14 doctoral programs. The GMSSO arranges social activities, coordinates campus-wide social action initiatives, and publishes the Graduate Student Survival Guide, a handy overview of housing, transportation, attractions and FAQs for new students.

Student Services

"Boston University's Division of Graduate Medical Sciences proved to be the ideal setting to obtain my Ph.D. It encompasses a large range of departments with excellent resources, both scientific and academic. It not only presented a supportive, encouraging and inspiring environment but also gave me cherished friends and unforgettable experiences!"

The Division of Graduate Medical Sciences office is the primary resource for graduate student services at the School of Medicine. The Division office provides travel grants for students to present their work at scientific conferences and offers professional development workshops to help students launch their scientific careers. The GMS Office hosts special events such as Russek Day to celebrate student research

accomplishments, Arts Day to showcase the artistic talents of all members of our community, and Hockey Night to cheer the BU team on to victory. The GMS Office collaborates with the Office of Diversity and Multicultural Affairs to foster an appreciation of cultural competence and health disparities and their role in biomedical science research.



Financial Support

Ph.D. students will be offered financial support covering tuition, a stipend, and health insurance through institutional support of the

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