

Guidelines for NYU-Tandon Biomedical Engineering PhD students (updated on Oct 22, 2020)

All students are required to peruse this document and responsible for abiding by the herein stated deadlines and rules. Failure to do so could lead to the loss of PhD candidacy status. Students should meet at least once a year with the Biomedical Engineering (BME) Chair of the *Graduate Student Committee*, who will assess their progress in coursework and compliance with other administrative requirements.

Students should also refer to the department website (Degree Requirements) and the bulletin for academic requirements and policies (e.g., transfer credits and required/elective courses) for the PhD degree in Biomedical Engineering. Note that the selection of non-BME electives requires the approval of the BMEPhD Academic Advisor.

1. Selection of Research Advisor

A PhD student must have a dissertation advisor within the BME faculty. Many factors enter the selection process; in addition to the common research interest and personality considerations, the financial aspects must also be considered. The ideal situation is to identify an advisor who has a project on a topic of mutual interest and has funding to support the student as a Research Assistant.

First-year PhD students, who have not been assigned a dissertation advisor together with their admissions letter, will be asked to interview with potential faculty dissertation advisors in the Fall semester of their first year. By December 20st, the students must submit to the BME Graduate Student Committee (GSC) a list of four dissertation advisors in the order of preference. The committee will review the choices, consult with dissertation advisors and submit their report to the department chair who will make the final decision. The BME graduate committee will notify the students of their advisor assignment before the beginning of the spring semester.

2. Qualifying Examination

Students in the Biomedical Engineering (BME) PhD program are required to take the doctoral qualifying examination (DQE) in May at the end of their first academic year. The DQE is administered by the BME DQE committee.

To take the DQE, students must register in Albert for RE-GY 9990 before the end of the add/drop period of the spring semester of their first year. In addition, all BME PhD students must fill out a DQE application form and submit it to the Chair of the BME-GSC by April 1, of their first academic year. Upon submission of the application form, students will be asked to hand in a written research report detailing the work completed up to that point and their research plans for the summer. A due date is set by the BME-GSC chair (usually in early May). The report must be single- spaced, 12-point font, including figures and references and not exceeding 4 pages.

Further, in early May the students will receive up to 3 journal papers from the current scientific literature and be asked to review them critically. The review will be presented, in an oral format, to two(2) members of the BME-GSC and the research advisor on a date set by the GSC chair (usually three weeks after the receipt of the research paper). The oral presentation should take about 30 minutes and will be followed by a period of questions from the committee members and answers by the students to these questions (usually around 60 minutes total). During the oral presentation, the students should demonstrate proficiency in biomedical engineering principles and their applications as well as the ability to think critically. In addition, a student should provide a brief (~5 min) description on his/her own research project at the end of the oral presentation. After the oral presentation and the question-and-answer period, the committee will deliberate on the outcome, considering the quality of the oral

presentation, the ability to answer the questions after the presentation, the research report, and the academic performance of the student at Tandon. The committee will its recommendation to the full BME-GSC, which will make a final decision at a later meeting during which all candidates are discussed. The student will receive a written notification about the outcome.

To be eligible to take the DQE, students should take all required BME graduate courses and BME graduate electives outlined by the BME PhD Academic Advisor. Students should consult with the BME PhD Academic Advisor about the criteria required for taking the DQE qualification. Students are not eligible to take the DQE if their cumulative GPAs are lower than 3.0 in all BME graduate courses (excluding seminars, guided studies, and other research credits) taken at NYU Tandon during their first academic year. The DQE eligibility also requires students to receive no more than one C grade or lower (*i.e.*, C+, C and F) in the BME graduate courses taken by the end of the first academic year.

If necessary, the committee may pass a student with a condition that the student successfully complete additional coursework or achieve a defined research milestone. Students who fail the first DQE in May of their first year may be invited by the committee to sit for a second DQE in August of the first year. In such case, a student must register for RE-GY 9990 in the Summer term. Students who are ineligible to take the DQE in the first year because of the failure to meet the academic requirements must consult with the BME PhD Academic Advisor, the BME DQE chair, and their research advisors about their options. Once the students meet the academic requirements, they may be allowed to take the DQE in the second year. To maintain the PhD candidacy status, students must pass the DQE by the end of the second year. Students who fail to pass the DQE may consider completing the requirements to obtain a terminal master's degree in Biomedical Engineering.

Results of the DQE are recorded in the student's transcript as RE-GY 9990. Until students pass the DQE, they cannot register for PhD dissertation credits (BE-GY 999X), but can register for up to 9 credits of BE-GY 998X that can count towards the total dissertation credits, upon the approval of the academic and research advisors. Note that BE-GY 998X does not qualify international students for full-time equivalency, in the way that BE-GY 999X does. Therefore, any international student taking BE-GY 998X will still have to be enrolled full-time for 9 credits total to maintain their visa status.

Upon successful completion of the DQE, the students and their dissertation advisors must assemble a dissertation committee within six months. The dissertation committee consists of a minimum of three members in addition to the dissertation advisor (thus forming a committee of four). The dissertation committee should have at least 2 BME faculty members at NYU Tandon, including the advisor, and 2 other members chosen from any combination from the following groups: (i) the BME faculty at NYU Tandon, (ii) faculty in other departments at NYU Tandon and other schools of NYU, (iii) qualified faculty from other institutions, and (iv) qualified individuals holding a PhD degree from industry. The qualifications and eligibility of individuals in groups (iii) and (iv) and the list of committee members will be reviewed by the research advisor and the BME graduate committee for final approval.

The students may form a larger committee (*e.g.*, with 5 or 6 members) but should consider the logistics of assembling the large group. Usually, the dissertation advisor serves as a dissertation committee chair. The student must fill out a "Request for Appointment or Reconstitution of PhD Guidance Committee" form, which may be downloaded online at <https://engineering.nyu.edu/academics/support-services/graduate>. This form must be submitted to the Office of the Associate Dean for Graduate Academics at Tandon. If a member of the dissertation committee becomes unable to participate after its initial formation, he/she should be replaced. In this case, a student needs to provide a list of new committee members to his/her dissertation advisor and the BME graduate committee for approval. A student should also re-submit a "Request for Appointment or Reconstitution of PhD Guidance Committee" form to the Office of the Associate Dean for Graduate Academics at Tandon.

3. Research Proposal Defense

Students who pass the DQE are required to defend their research proposal by the spring semester of their second academic year. Students should consult with the dissertation committee members to schedule the research proposal defense. Students are expected to prepare a 30-minute presentation about the research they have conducted to date, as well as their future research plans. In addition, students are required to submit a report to their committee at least one week in advance of the defense date. This report should contain an introduction, literature survey, description of materials and methods, preliminary work and future work. This report should also include the specific objectives and aims of their dissertation, as well as a list of references. The document should be double spaced, 12-point font, 20-25 pages long, and prepared under the guidance of the dissertation advisor. Students who pass the research proposal defense continue towards the PhD. There is a “Research Proposal Defense” form available on the department website that must be signed by the committee after the research proposal defense. Copies of the completed form must be submitted to the BME Graduate Committee. In addition, upon completion of the research proposal defense, the dissertation committee chair must fill out an “Evaluation Rubric” form available on the department website and submit it to the BME Graduate Committee. A request for an extension of the proposal defense date must be submitted in writing to the BME Graduate Committee for approval.

At the discretion of the dissertation committee, students who fail the research proposal defense may be offered one more chance at passing the proposal defense within a six-month period. Students who fail for the second time will not be allowed to advance towards a PhD degree and may choose to leave with a master’s degree in Biomedical Engineering if all other requirements for the MS degree are met.

4. Annual Progress Meeting—by the spring semester of the third year

Upon successful completion of the research proposal defense, PhD candidates are expected to schedule an annual progress meeting by the spring semester of every year before the data defense. The annual progress meeting serves to update the committee on the research progress and obtain feedback from the committee. The annual progress meeting requires an oral presentation that describes the completed work as well as the remaining tasks. Under the guidance of the dissertation advisor, students must prepare a written document of typically 5-10 pages, double spaced, 12-point font that outlines updates on the research work. This document should be given to the dissertation committee at least one week in advance of the progress meeting. There is an “Annual Progress Meeting” form available on the department website that must be signed by the dissertation committee after the annual progress meeting. Copies of the completed form must be submitted to the BME Graduate Committee. In addition, upon completion of the annual progress meeting, the dissertation committee chair must fill out an “Evaluation Rubric” form available on the department website and submit it to the BME graduate committee.

A student should hold an annual progress meeting every year between a research proposal defense and a data defense. If the student fails the annual progress meeting, the student does not advance towards a PhD degree and may leave with a master’s degree in Biomedical Engineering if all other requirements for the MS degree are met.

5. Data Defense

Upon successful completion of the annual progress meeting, PhD candidates are expected to schedule the data defense by the spring semester of the fourth year. The data defense allows the students to update the committee on the research progress and obtain feedback from the committee. This will also ensure that students have ample time to take any corrective actions and to address critical concerns before the dissertation defense. The data defense will require an oral presentation that describes the completed work as well as the remaining tasks. Under the guidance of the dissertation advisor,

students must prepare a written document of typically 20-25 pages, double spaced, 12-point font that outlines the completed and remaining work, together with the research objectives and aims. This document should be given to the dissertation committee at least one week in advance of the data defense. There is a “Data Defense” form available in the department website that must be signed by the dissertation committee after the data defense. Copies of the completed form must be submitted to the BME Graduate Committee. In addition, upon completion of the data defense, the dissertation committee chair must fill out an “Evaluation Rubric” form available on the department website and submit it to the BME graduate committee. If a student fails the data defense, the student may leave with a master’s degree in Biomedical Engineering if all other requirements for the MS degree are met.

6. Dissertation Defense

Students who are about to finish their research and are preparing to defend their PhD dissertation must submit a “Request for Appointment or Reconstitution of PhD Guidance Committee” form, available online at <https://engineering.nyu.edu/academics/support-services/graduate>. This form must be submitted to the Office of the Associate Dean for Graduate Academics at Tandon. The dissertation research results must be the original creation of the student and be written up as a PhD dissertation. The document “PhD Dissertation Guidelines” can be downloaded from <https://engineering.nyu.edu/academics/support-services/graduate>. In the preparation of their dissertation, students must abide by the “NYU Tandon Policies and Procedures on Academic Misconduct”, available at <https://engineering.nyu.edu/campus-and-community/student-life/office-student-affairs/policies/student-code-conduct>. Once the dissertation is completed, the students must schedule the dissertation defense. An electronic copy of the dissertation must be submitted to each dissertation committee member at least one week in advance of the defense.

Students must submit the form “Request to Schedule Dissertation Defense for the PhD Degree” to the Office of the Associate Dean for Graduate Academics at Tandon at least several weeks in advance of the scheduled date. This form is also available online at <https://engineering.nyu.edu/academics/support-services/graduate>. Upon consultation with a dissertation advisor, a student may send his/her draft dissertation to an external reviewer outside the dissertation committee for additional feedback.

Students are expected to prepare a 40-minute oral dissertation presentation open to the public. During the defense, questions from the public and the committee are allowed. Once all public questions have been answered, the questioning of the candidate by the committee may continue in private. After the questioning is completed, the candidate will be asked to step out while the committee deliberates on the outcome. The PhD candidate will then be called in and informed of the final decision. The committee may ask for changes in the dissertation before the final approval. If the decision is positive, the student will be granted his/her PhD degree, contingent upon the submission and acceptance of any changes to the dissertation requested by the committee. If not, the student may leave with a master’s degree in Biomedical Engineering if all other requirements for the MS degree have been met. Upon completion of the dissertation defense, the dissertation committee chair must fill out an “Evaluation Rubric” form available on the department website and submit it to the BME graduate committee.

During all oral presentations, questions from the audience and the dissertation committee are allowed. Questions may be specific to the research presented or broad, covering basic aspects of biomedical engineering, biology, medicine, or instrumentation, and hence candidates should be fully prepared to answer them all.

Once a student is granted a PhD degree, he/she must fill out an exit survey available on the department website before graduation.

7. Full-time Study for the PhD degree

Full-time status is defined as 9 or more credits per semester (fall and spring) of coursework prior to passing the qualifying exam. Students who have passed the PhD qualifying exam are considered full-time if they register for a minimum of 3 credits of dissertation (BE-GY 999X) per semester (fall and spring). Once students begin their PhD dissertation research (i.e., start taking dissertation credits), they must register for a minimum of 3 dissertation credits each fall and spring semester until the dissertation is completed. If students register only for 3 credits of a "regular" course (but no dissertation credits), they are not considered full-time students. Full time equivalency (FTE) is a recognition that the nature of dissertation work often requires a full-time effort, irrespective of the number of credits taken.

Once PhD students have completed the credit requirements (that is, 75 credits including all necessary coursework and dissertation credits), they may request Maintenance of Studies (MOS) every fall and spring semesters (and summer, if they intend to graduate in the summer) with no tuition charge (institute fees still apply) until completion. Students should refer to the bulletin for guidelines and requirements before requesting MOS. Maintenance of Studies (MAINT-GY4747) officially maintains the student's degree candidacy and their matriculation.

8. Time Limit for PhD Program

The time limit for a PhD degree varies depending on the matriculation year, the number of transfer credits, and full-time or part-time status. Students should refer to the bulletin for details. For PhD students admitted prior to Spring 2019, PhD programs must be completed within 6 years for full-time students and 12 years for part-time students, counting from the time of admission to graduate studies at NYU Tandon (not from the beginning of PhD studies). For PhD students admitted as of Spring 2020, full-time students transferring fewer than 24 credits have 7 years to complete the PhD program, counting from the time of admission into the PhD program. Full-time PhD students transferring 24 or more credits are granted 6 years to complete their PhD studies, counting from the time of admission into the PhD program at NYU Tandon. Part-time PhD students must complete all requirements for the PhD within 9 years, counting from the time of admission into the PhD program.

Extensions of these time periods are rarely granted and require prior approval from the Associate Dean of Graduate Academics at Tandon. Students must submit a "Request for Extension of Time to Complete Degree Requirements" form available at <https://engineering.nyu.edu/academics/support-services/graduate> to request an extension, at least 60 days prior to the deadline for completion. If an extension is granted, not all courses taken previously may count towards the degree. The Associate Dean, consulting with the department, will prepare a plan for the student to follow to obtain the degree.

9. Leave of Absence

Student may receive up to 2 semesters of leave of absence (LOA), and requests should be submitted through Albert. Personal LOAs are approved through the Office of Graduate Academics, and generally are only permitted for students in good academic standing. Medical LOAs require the approval of the Office of Student Affairs. If approved, the LOA "stops the clock" and does not count against the total time for PhD program completion. Students should refer to the website of Office of Student Affairs (<https://engineering.nyu.edu/campus-and-community/student-life/office-student-affairs/policies>) for details about the different types of LOAs. Any student who is not registered and who is not on an approved leave of absence is automatically discontinued by the university. Such students must reapply to the PhD program at a future time. However, as is present practice, such students must follow the bulletin and rules in effect at the time of the readmission (if granted). LOAs may affect immigration status, and international students should consult with OGS before taking a leave. Students should refer to the Academic Support Services website (<https://engineering.nyu.edu/academics/support-services/registration/registration-forms>) for submission of LOA requests.

TABLE 1 – A Typical Timetable of PhD DQE and Dissertation Requirements

Exam/Meeting	Typical timing (outcome)	Format, requirements, and purpose
Doctoral Qualifying Exam	Year 1, Spring (Pass/Fail)	Brief written research plan and work to date. Oral critique on a committee-chosen paper in front of BME faculty. Satisfactory progress in classwork. The goal is to determine if the student has a satisfactory understanding of fundamentals and a research topic to progress to PhD candidacy.
Research Proposal Defense	Year 2, Spring (Pass/Fail)	An oral presentation on research to date and a proposal for future work. The goal is to determine if the student can conduct and plan independent original research.
Annual Progress Meeting	Year 3, Spring (Pass/Fail)	An oral presentation and a written document on research to date. The goal is to update the dissertation committee and receive critical feedback on setting future goals.
Data Defense	Year 4, Spring (Pass/Fail)	An oral presentation with supplementary papers drafted or published to date. The goal is to update the dissertation committee and receive critical feedback before the dissertation defense.
Dissertation Defense	Year 4, Fall or later (Pass/Fail)	An oral defense of a written dissertation. The goal is to determine if a student has conducted original, in-depth research for which a PhD degree can be granted.