



BIOLOGY DEPARTMENT
GRADUATE PROGRAM
HANDBOOK

2020

Table of Contents

1. Graduate Programs	3
1.1. Ph.D. Program Overview	3
1.2. Combined Bachelor of Science/Master of Science Program Overview	4
2. Academic Procedures and Regulations	4
2.1 Graduate Admissions Committee	5
2.2 Graduate Program Committee	5
2.3 Graduate Advising.....	5
2.4 Responsibilities of the Graduate Student	5
2.5 Requirements for Teaching Assistantships	7
2.6 Grade Requirements for Good Standing.....	7
2.7 Departmental Time Limits for Degree Completion.....	8
2.8 Predoctoral Fellowships.....	8
3. Ph.D. Program	8
3.1 Ph.D. Course Requirements & Example Program Schedule	8
3.2 Ph.D. Comprehensive Exam	10
3.3 Ph.D. Thesis Guidance Committee (TGC) Meetings.....	11
3.4 Ph.D. Thesis and Defense.....	12
3.5 M.S. Degree Option for Students in the Ph.D. Program	13
3.6 Overview of Multiple Ph.D. Committees	14
3.6.1 Ph.D. Comprehensive Examination Committee.....	14
3.6.2 Thesis Guidance Committee (TGC)	14
3.6.3 Ph.D. Defense Committee.....	15
3.6.4 Voting Rule for Thesis Advisory, Comprehensive Exam, and Ph.D. Defense Committees	15
3.7 Leave of Absence	16
4. B.S./M.S. (Five-Year Combined) Degree Program in Biology (“5YBS/MS”)	16
4.1. Rationale.	16
4.2. Plan of Research & Timing within Program	16
4.3. B.S./M.S. Requirements & Typical Program Schedule.....	17
4.5 Schedule and Time Limitations	18
5. Ph.D. Program Data.....	18
5.1 Time to degree.....	18



5.2 Publications.....	18
5.3 Placement data	18
6. Resources at Boston College.....	20

1. Graduate Programs

The Biology Department of Boston College offers a program leading to the degree of Doctor of Philosophy, as well as a five-year B.S./M.S. dual degree program. The department also cooperates with the Graduate School of Education in the Master of Science in Teaching (M.S.T.) program.

1.1. Ph.D. Program Overview

Boston College Biology PhD Program at a Glance

	Goal	Fall	Spring	Summer
Year 1	Acquire foundational knowledge and identify a thesis lab	<ul style="list-style-type: none"> Core or elective courses Lab Rotation 1 & 2 Optional elective course Attend seminars and data clubs TA 	<ul style="list-style-type: none"> Core or elective courses Lab Rotation 3 Join PhD lab Attend seminars and data clubs TA 	Research
Year 2	Enhance critical reading and writing skills; advance to candidacy	<ul style="list-style-type: none"> Core or elective courses Attend seminars and data clubs TA or RA 	<ul style="list-style-type: none"> Proposal writing seminar Comprehensive exam Core or elective courses Attend seminars and data clubs TA or RA 	Research
Year 3	Develop presentation and oral communication skills; accelerate progress on thesis project	<ul style="list-style-type: none"> Present at data club Optional elective course Attend seminars and data clubs TA or RA 	<ul style="list-style-type: none"> First Thesis Guidance meeting Optional elective course Attend seminars and data club TA or RA 	Research
Year 4+	Progress toward timely completion of thesis experiments, publication of results, develop career goals	<ul style="list-style-type: none"> Present at data club Attend seminars and data clubs TA or RA 	<ul style="list-style-type: none"> Thesis Guidance meetings (at least once/year) Attend seminars and data clubs TA or RA 	Research
 Write and defend thesis. Submit final dissertation. 				

The Boston College Biology PhD program combines experiential learning, coursework, training in scientific communication, and teaching opportunities to prepare our students for careers in academia, industry, and other related areas that require advanced scientific training.

Learning outcomes for students who complete a Ph.D. in Biology include being able to:

1. Conduct original, publishable research in a field of Biology.
2. Formulate a novel research question and design the experiments required to make advances in the field.
3. Demonstrate a broad knowledge of theory and research in several areas of Biology and an in-depth knowledge of a specific area of expertise.
4. Display an understanding of the ethical guidelines for biological research and be able to follow such guidelines.
5. Communicate the findings of their research both orally and in writing to professional and lay audiences.

Individual requirements and policies of the program are described in the following sections of this Handbook.

1.2. Combined Bachelor of Science/Master of Science Program Overview

A minimum of 20 graduate credits is required for the dual B.S./M.S. degree in Biology. This includes the Graduate Core courses (8 credits) and one Graduate Seminar/Elective Course (2-3 credits). Application to the program must take place before the end of the junior year in order to assure that a sufficient number of graduate credits are taken during the senior year. Up to two courses can be counted toward both the BS and MS degree requirements. As these students are expected to stay in the same lab as their undergraduate research lab to conduct their M.S. thesis research, research rotations are not required (see 4.2 below). Successful completion of the M.S. degree requires the writing of a thesis based on original research conducted in the Biology Department and the presentation and oral defense of said thesis to the M.S. Thesis Defense Committee. The M.S. Thesis Defense Committee is composed of the Research Advisor and two additional faculty members selected by the Research Advisor.

2. Academic Procedures and Regulations

All graduate students are responsible for meeting the comprehensive degree requirements contained in the Graduate School of Arts and Sciences Bulletin and as stated herein. Any questions concerning these regulations should be addressed to the Graduate Program Director or the Department Chairperson.

2.1 Graduate Admissions Committee

A Graduate Admissions Committee, whose membership is determined by the Department Chairperson, is tasked with evaluating, admitting, and recruiting new students into the Biology Department Ph.D. Program. The duties of this committee shall include:

- Review of each entering student's academic record and background, and professional goals.
- Determination if the student has any specific background deficiencies, which must be corrected as a condition of acceptance.
- Recommending selected entering students for special fellowships and awards.

2.2 Graduate Program Committee

A Graduate Program, whose membership is determined by the Department Chairperson, is tasked with evaluating and updating policies of the Graduate Program. The committee will be composed of the Department Chairperson, the Graduate Program Director, the Associate Director of the Biology Department, at least one additional faculty member in the graduate program, and the President of the Biology Graduate Student Association, and additional faculty selected by the Department Chairperson.

2.3 Graduate Advising

The Graduate Program Director will provide general advice regarding coursework until a student has identified a Research Advisor. After that, the primary guidance will come from the Research Advisor, with input from the Thesis Guidance Committee (see Section 3.3). Departmental approval is required for coursework outside of the normal offerings of the department.

Students can get transfer credits for up to two courses that they have taken at the graduate level in the past. To do this, please speak to the Graduate Program Director and have syllabi for the course or courses in question. Once approved, the student should meet with the Department Associate Administrator to complete the process.

2.4 Responsibilities of the Graduate Student

1st Year

- Students are encouraged to meet with their Research Advisor or the Graduate Program Director for guidance regarding course registration each semester.
- Students must successfully complete those courses that the Graduate Admissions Committee required the student to take to correct deficiencies in their record.

- Students must attend Departmental Seminars, normally held Tuesdays at 3 p.m. and are required to attend Departmental Data Clubs that are held biweekly on Thursdays at 3 p.m. Students are also encouraged to sign up for lunches with seminar speakers as a way of networking with people in their scientific community.
- Students are expected to have completed lab rotations and selected their Research Advisor by the end of the first year, with the exception of students entering the program in the Spring semester. The purpose of lab rotations is to give students the opportunity to experience the research and research environment of a possible thesis lab. Students entering the program with a BA or BS degree are required to complete three rotations, while students entering with an MA or MS degree are required to complete two rotations (only two rotations are required for all students for the 2020-21 academic year due to COVID-19). If a student has not joined a lab by the end of the Spring semester as a full-time student in the graduate program, the student must submit a written statement to the Graduate Program Director describing the specific plans that the student has for selecting a lab. Students entering in the Spring semester are required to have joined a thesis lab before the start of the following Fall semester. The Graduate Program Director may meet with the student to discuss these plans.

2nd Year

- Students are to discuss course selection with their Research Advisor and the Graduate Program Director.
- Students must successfully complete the courses in which they enroll.
- Students must attend Departmental Seminars, normally held Tuesdays at 3 p.m. and are required to attend Departmental Data Clubs that are held biweekly on Thursdays at 3 p.m. Students are also encouraged to sign up for lunches with seminar speakers as a way of networking with people in their scientific community.
- Students must pass their Comprehensive Exams (See Section 3.2).

3rd and subsequent years

- Students must complete any additionally required coursework.
- Students must present at Data Club each academic year.
- Students must attend Departmental Seminars, normally held Tuesdays at 3 p.m. and are required to attend Departmental Data Clubs that are held biweekly on Thursdays at 3 p.m. Students are also encouraged to sign up for lunches with seminar speakers as a way of networking with people in their scientific community.
- Students must meet with their Thesis Advisory Committee (See Section 3.3) at least once annually.

2.5 Requirements for Teaching Assistantships

There is a two-semester teaching requirement that is generally fulfilled in the first year. The two semester requirements is a key component of the overall graduate training program. Subsequently, Ph.D. students may be supported by Teaching Assistantships beyond the first year in the graduate program at the discretion of their Research Advisor and/or Thesis Guidance Committee. Students in the five-year B.S./M.S. program may be eligible for a Teaching Assistantship in their fifth year if there is available funding, although this is not guaranteed. Teaching assignments are jointly determined by the Departmental Associate Chair and the Graduate Program Director. The goal is to announce assignments at least two weeks prior to the start of the semester, however there are times that individual assignments are delayed. As in any matter of concern of the graduate student, if an issue arises with regard to the TA assignment and expectations, students should bring the matter to the attention of the Graduate Program Director.

2.6 Grade Requirements for Good Standing

University regulations require that graduate students maintain a cumulative GPA of B (3.0) or higher in their lecture, laboratory, and seminar courses as determined at the end of each academic year (i.e., end of the summer session).

A student whose GPA falls below a B average (3.0) will be considered to be on probation and must bring their average above 3.0 by the end of the following semester and/or summer session to be considered in good standing in the program. A student who fails to do so will be required to leave the program. First year students are evaluated at the end of the Spring semester. If their GPA is below a 3.0, they have the Summer term to bring it to or above 3.0 to return to Good Standing.

In addition, a student who receives an F in a lecture, laboratory, or seminar course is considered on probation and must repeat the course or an equivalent course approved by the Graduate Program Director, with a passing grade at the next opportunity in order to have the opportunity to return to good standing in the graduate program. A student who receives grades of C or lower in more than eight credits of course work or whose cumulative GPA is less than 3.0 at the end of an academic year may be required to withdraw from the Biology Graduate Program.

Records of students not in good standing will be evaluated each semester by the Graduate Program Director in consultation with the student's Research Advisor to determine how the deficiency may be corrected, whether the student will continue to receive departmental financial support, and whether to recommend continuation in or termination from the program. If a student is not in good standing and does not have a Research Advisor, the Graduate Program Director will evaluate the student in consultation with the Department Chairperson to determine appropriate action.

At the end of the Spring semester of the first year, all first-year Ph.D. students will be reviewed at a meeting of the tenure-track faculty to determine whether or not their progress in the program is satisfactory (i.e., completion of expected core courses, maintenance of a >3.0 GPA, identification of a Ph.D. lab, suitable effort in their TA assignments, attendance at departmental seminars and data clubs). If any deficiencies are noted, the student will be either required to leave the program or placed on probation. In instances where the student is placed on probation, they will be provided with oral and written instructions on how to address these deficiencies and return to good standing.

2.7 Departmental Time Limits for Degree Completion

All Ph.D. students are allowed eight years after matriculation into the program (rather than after advancement to candidacy) to complete the requirements for the degree. After seven years, students may no longer be eligible for Teaching Assistantships. At the end of the eighth year, a student may petition the Associate Dean of the Morrissey Graduate School of Arts and Sciences for a terminal, one-year extension to complete their degree.

2.8 Predoctoral Fellowships

Creating a track record of independent funding sets up a graduate student for research success. While funding is generally available through RA- and TA-ships, with the approval of their advisor, all graduate students are encouraged to apply for independent, extramural funding. Students are encouraged to look into applying for funding through the NSF and NIH, as well as through independent agencies and foundations. For more information on funding opportunities and where to find them, see [this page](#) on the Morrissey College of Arts and Sciences website.

3. Ph.D. Program

3.1 Ph.D. Course Requirements & Example Program Schedule

The minimum curriculum for Ph.D. students consists of at least four Graduate Core Courses and two additional Biology-approved Graduate Elective Courses as described in Section 1.1. In addition, all students are required to complete two semesters of teaching (typically as Teaching Assistant) and the [Research Scholarship & Integrity](#) (RSI) program within their first two years. (The RSI program requires the completion of two general sessions and four workshops.)

One Example of a Program for Ph.D. Students

Please note that this is only an example. Your Ph.D. plan is tailored to your scientific career goals. You should speak to the Graduate Program Director, your Research Advisor, and your Thesis Guidance Committee regularly to determine the path that is best for you.

NOTE: *Attendance at all Department Seminars and Data Clubs is required of all fulltime graduate students throughout their program participation; from the third year on, the student presents in Data Club each academic year.*

Semester One:

Grad Core Biology	2 credits
Grad Core Biology	2 credits
Biology-approved Graduate Elective (optional)	2 or 3 credits
Lab Rotation 1	1 credit
Lab Rotation 2	1 credit
Teaching Assistantship	

Semester Two:

Grad Core Biology	2 credits
Grad Core Biology	2 credits
Biology-approved Graduate Elective (optional)	2 or 3 credits
Lab Rotation 3	1 credit
Teaching Assistantship	

Semester Three:

Grad Core Biology	2 credits
Thesis Research	
Biology-approved Graduate Elective (optional)	2 or 3 credits
Teaching Assistantship or Research Assistantship	

Semester Four:

Grad Core Biology (Proposal Writing) BIOL6180	2 credits
Biology-approved Graduate Elective (optional)	2 or 3 credits
Thesis Research	
Ph.D. Comprehensive Exam	
Teaching Assistantship or Research Assistantship	

Semester Five:

Thesis Research	
Biology-approved Graduate Elective (optional)	2 or 3 credits

Semester Six and afterward:

Thesis Research	
Departmental Data Club (present annually)	
Thesis Guidance Committee meetings (annually)	
Optional additional courses	

Completion of Ph.D. Dissertation
Public Presentation of Ph.D. Thesis
Private Defense of Ph.D. Thesis

3.2 Ph.D. Comprehensive Exam

To advance to candidacy for the doctoral degree, the student must first pass a Ph.D. Comprehensive Examination. The Comprehensive Exam will take place no later than May 31 of the student's second year. Passing the exam on that occasion, or on the basis of a "re-take" examination is required for continuation in the Ph.D. program.

This examination consists of both a written component and an oral component that is based on the written component. The written component is a research proposal describing the student's intended thesis project. The document is to be no more than 10 pages in length with Arial 11 font, 0.5 inch margins, and normal character spacing. Additional guidance regarding the appropriate lengths of the individual sections will be covered during the Scientific Proposal Writing Course taken during the first half of the Spring semester of the student's second year in the program. Additionally, this proposal is to be completed without direct help from the student's Research Advisor. While students should be discussing their research regularly with the Research Advisor, they are required to generate the aims, approaches, and analyses independently. Additionally, the student's Research Advisor should not read the written document or formally prepare the student for the oral examination. The written proposal is to be provided to the examination committee (Discussed in Section 3.6.1) no later than two weeks before the date of the oral examination.

Scheduling the oral exam is the responsibility of the student. The student should work with the office staff to reserve a room for 3 hours. In the case that the exam will be held via electronic platform, the Chairperson of the Ph.D. Comprehensive Exam Committee will create and host the meeting. It is the student's responsibility to bring a copy of [the Doctoral Comprehensive Examination form](#) to the meeting and return the completed form to the Department Associate Director. Before the oral exam begins, the student will be asked to leave the room so that the Ph.D. Comprehensive Exam Committee can discuss the proposal and the expectations for how the Oral Exam will proceed. For the oral exam, students should prepare a Powerpoint or other slide presentation that would take 20-25 minutes to present if there were no interruptions. In fact, during the oral presentation, faculty will interject questions for the student. The goal of the Ph.D. Comprehensive Exam Committee is determining whether or not the student is sufficiently prepared to undertake and evaluate this research. The questions can focus directly on the proposed work or more general knowledge that is relevant to the proposed research. These questions are aimed at determining whether the student understands previous work on which their proposed research is based, the advantages and disadvantages of their proposed experiments, the ability to design proper controls to generate interpretable data, statistical

analyses, and other details deemed important by the committee. A general suggestion for a presentation is about 5 minutes of background and significance and 13-18 minutes of Aims, Research Plan and Methods, and 2 minutes of timeline and concluding remarks – however, students may use different formats as appropriate.

On the basis of the written proposal presentation, the student's understanding of the proposed project and relevant background information, the Ph.D Comprehensive Examination Committee will vote on whether the student is qualified to advance to Ph.D. candidacy. If a student passes the examination and has completed all other requirements for the Ph.D. degree, with the exception of the thesis and its defense, the student will be considered to have formally advanced to candidacy for the degree. A very common outcome is a conditional pass in which students are given a clear description of what conditions must be met to ultimately pass the exam. The chair of the committee will provide in writing what these conditions are, how they will be evaluated, and how long the student is given to fulfill the conditions. Possible conditions could include some minor rewriting of the proposal, a more significant revision based on the discussions during the exam, writing a mini-review of the literature to address a gap in a student's knowledge, or completion of a course in an area of deficiency. If the instructions are not clear to the student, it is the student's responsibility to clarify the instructions with the Ph.D. Comprehensive Exam Committee.

Any student who does not pass the comprehensive exam must re-defend the initial proposal or prepare, submit, and defend a new proposal as deemed appropriate by the Ph.D. Comprehensive Examination Committee. The retaking of the exam must take place within six months of the initial exam. If a student does not pass the Ph.D. Comprehensive Examination within the limits outlined above, they will be terminated from the Ph.D. program. The Ph.D. Comprehensive Examination Committee may in such circumstances recommend that the student be offered a transfer into the M.S. Program, with sufficient and stated time limits to allow the student to reasonably complete the requirements for the M.S. degree (generally no more than the end of the following semester).

3.3 Ph.D. Thesis Guidance Committee (TGC) Meetings

Beginning in the third year, students are required to meet at least annually with a Thesis Guidance Committee (the composition of the TGC is described in section 3.6.2). This meeting must take place before the end of May in order for students to receive their June stipend. Therefore, it is important to plan these meetings well in advance to be sure that committee members are available to meet. Should a meeting not take place by May 31, the forfeited June stipend will not be retroactively paid once a meeting has been held. One week prior to the meeting, students should write and distribute a summary of their accomplishments since the previous meeting, along with their upcoming goals/plans, to the committee members, and prepare to give a presentation on their research at the meeting. After the first of these meetings,

these summaries and presentations should focus on work completed since the last meeting rather than a full recap of the project.

At the beginning of each thesis guidance committee meeting, the student will be asked to leave the room so that the committee can have a private discussion and solicit the Research Advisor's feedback regarding the student's development and critical areas for growth. After that, the Research Advisor will leave the room so that the committee can have a private discussion with the student to determine whether or not there are any issues that concern the student, which may best be discussed in the absence of the Research Advisor. There is no limit on what the student can discuss during this time including any personal difficulties that may be affecting the student and issues of lab dynamics or mentoring that are causing the student difficulty. This discussion is confidential and will not be relayed to the Research Advisor without the permission of the student.

The committee is there to serve the student and act in their best interest. The committee chair is someone other than the Research Advisor. At the end of the meeting, the TGC Chairperson will summarize the major accomplishments of the student since the previous meeting (or all accomplishments in the case of the first meeting). It is the student's responsibility to bring a copy of the [Thesis Guidance Committee Meeting Form](#) to the meeting and return the completed form to the Department Associate Director. In addition, committee members will vote as to whether or not the student's progress is satisfactory. In addition, the goals for the coming year will be written out on the meeting form, with copies of the form to be given to the student and the Biology Department Associate Director. In the case of a vote of satisfactory, the student will need to meet with the committee within the next academic year, unless the student or the committee decides it would be beneficial to meet sooner. In the case of a vote of unsatisfactory progress, the student will be given a written list of specific goals to be met before the next meeting which must take place within six months. Should there be two consecutive meetings with a vote of unsatisfactory progress, the student will be given an option of writing up their work for a M.S. degree, but only if the committee determines that there is sufficient material to warrant an M.S. thesis. Finally, students are encouraged to schedule committee meetings more frequently than the annual basis should they feel that additional meetings would be helpful to their progress. A final committee meeting is required at which the student will be given approval to begin writing their dissertation. Once approval is given, students should complete the dissertation no later than the following semester (exceptions require a waiver from the Graduate Program Director.)

3.4 Ph.D. Thesis and Defense

In anticipation of defending the thesis, the Student and Research Advisor will create a Ph.D. Defense Committee (See Section 3.6.3). The written dissertation must comply with [Boston College Guidelines](#). Committee members may request either an electronic pdf version of the

dissertation or a hard copy, which must be distributed to the Thesis Defense Committee at least 14 days prior to the examination. Defense Committee members are required to notify the Committee Chair whether there are any insurmountable issues that would prevent a successful defense. If such a concern is raised, the defense will be delayed until the matter is resolved to the satisfaction of the committee members.

The defense of the dissertation will occur in two phases: 1) a public defense, followed by 2) a private defense. At the public defense, the student will give a seminar describing their research findings (typically 45 minutes) and take questions from the audience. The private defense is only attended by the Thesis Defense Committee and the student.

The private defense will begin with the student leaving the room so that the Ph.D. Defense Committee can discuss their general evaluation of the written thesis and the scope and the approach of the examination. Upon returning, the student will answer the questions of each of the Ph.D. Defense Committee Members. When the Ph.D. Defense Committee has finished asking questions, the student will leave the room again so that the Ph.D. Defense Committee can vote on whether or not the student has passed and/or whether there are any conditions that need to be fulfilled prior to passing. It is common for some final re-writing or editing to be required.

To receive the Ph.D. degree, official approval of the written dissertation by the members of the Ph.D. Defense Committee is required. Committee members certify their acceptance of the written thesis by signing the title page of the dissertation and their vote on the defense by completing the appropriate forms. The student must file two signed copies of the approved dissertation in the Registrar's Office, following the guidelines established by the Graduate School of Arts and Sciences. Electronic signatures are acceptable when committee members are not physically present to sign the document.

3.5 M.S. Degree Option for Students in the Ph.D. Program

Depending on circumstances, the student or the Graduate Program Committee may determine that a student should seek a Master of Science degree rather than continue in the Ph.D. program. This can only be done if there is sufficient research completed for the student to write and defend a research thesis within one semester of transferring out of the Ph.D. program. While there are no specific format requirements, the requirements of the Graduate School of Arts and Sciences must be followed.

The completed M.S. thesis will be submitted to the student's Research Advisor for preliminary approval. Once approved, the thesis will be given to all members of the M.S. Thesis Defense Committee (composed of the Research Advisor and two additional faculty members selected by the student with guidance from the Research Advisor). The Chairperson of this committee will normally be the Research Advisor. The thesis will be given to all committee members no later

than 14 days prior to a meeting at which the student will present, and be examined regarding the thesis.

The thesis examination will consist of questions related to the thesis, but should also test the student's general understanding of the area of biology in which the thesis work was completed. Once the examination is completed, the committee chair will communicate the results on the appropriate form to the Department Chairperson and the Dean of the Graduate School. As stated in the Graduate School of Arts and Sciences regulations, a candidate who fails the thesis examination may take it only one more time. If the outcome is a conditional pass, the student will be instructed on what conditions must be met and the timeframe in order to pass the exam.

3.6 Overview of Multiple Ph.D. Committees

There are several committees that shepherd a Ph.D. student through the Biology Graduate Program. While the committees have different names to reflect their different functions, there is usually a substantial continuum of faculty membership. The committees are described in detail below. For clarity, they are briefly summarized here in their order of appearance in each student's training.

3.6.1 Ph.D. Comprehensive Examination Committee

This process starts during the Spring semester of the second year in the program when the Department assigns two faculty members to the Ph.D. Comprehensive Exam Committee for each student. After that time, the Student in consultation with their Research Advisor will select a third Ph.D. Comprehensive Examination Committee member.

3.6.2 Thesis Guidance Committee (TGC)

The role of the Thesis Guidance Committee is to assist and advise the student to define and to achieve their goals in relation to completing the PhD. The TGC is not an examination committee, but rather an advisory committee that students should use as a resource. Students are therefore encouraged to meet with these faculty members regularly, both formally and informally, to gain the most from their time at Boston College. While students are required to meet with the TGC at least once a year, this is a minimum requirement, and additional meetings can be requested. Students can also seek advice or feedback from individual committee members at any time.

The Thesis Guidance Committee consists of three or more faculty members (the student's Research Advisor and at least two other faculty members) who advise the student beginning in the third year. At least one member of the TGC must be of a rank equal to or higher than that of the Research Advisor. At least one member of the committee should be selected that has no

obvious conflict of interest that could potentially affect their ability to objectively advise the student (Co-PI on a grant or other financial arrangement involving the Research Advisor, frequent co-authorships, etc.). Faculty members outside of the Biology Department and even the University can serve as additional members.

TGC Chairperson responsibilities: The chair of the committee will be selected at the first meeting, and is someone other than the student's Research Advisor. Students must have their first TGC meeting before the end of the academic third year, and meet at least once annually until their Ph.D. Defense. The TGC chairperson is responsible for calling all TGC meetings to order, for ensuring individual confidential discussions with the Research Advisor and the Student take place at the beginning of the meeting, for keeping notes on the meeting and for completing the TGC meeting form. In the event that the TGC meeting must be held online, the TGC chairperson should generate the link and act as “host”.

3.6.3 Ph.D. Defense Committee

The Ph.D. Defense Committee is composed of the Thesis Guidance Committee plus additional internal or external faculty members to bring the committee to five members. The Ph.D. candidate will defend the thesis with a public seminar-style presentation, followed by a private oral examination. The student's Thesis Guidance Committee Chair will serve as the Chair of the Ph.D. Defense Committee.

Duties of the Chairperson include:

- Contacting each of the Ph.D. Defense Committee members 3 days prior to the scheduled defense requesting that any members raise any serious concerns regarding the suitability of the thesis for defense.
- Calling the Defense to order and ensuring that proper protocols regarding private discussions and voting are followed.
- Setting the order by which the questioning of the Student will proceed.
- In the event that the Examination is held remotely, establishing an online meeting and acting as host.

3.6.4 Voting Rule for Thesis Advisory, Comprehensive Exam, and Ph.D. Defense Committees

Voting options, when voting is required, are pass or fail. In some cases, a passing vote may include conditions that must be met by the student. Committees should strive in each case to reach a unanimous decision. However, if this is not possible, the rule shall be that if more than one member of any of the above committees votes fail, then the student will be considered to have failed to complete the requirement being addressed by the committee. In the case of a

divided vote, the student may appeal the decision to the Graduate Program Director and Department Chair.

3.7 Leave of Absence

The University provides guidelines and procedures for various types of leaves. Students seeking a leave of absence should refer to the Morrissey College of Arts & Sciences [Policies and Procedures page](#) for guidance.

4. B.S./M.S. (Five-Year Combined) Degree Program in Biology (“5YBS/MS”)

4.1. Rationale.

This program allows Boston College students involved in undergraduate research to apply to the Biology Department Graduate Program during their Junior year, for entry into the 5YBS/MS before the beginning of their Senior year. The two degrees will be conferred as requirements are completed (see 5.5 below). The program will result in a terminal M.S. Degree with no avenue to switch to the Ph.D. Program and no commitment to Ph.D. Program admission for the student (in fact, 5YBS/MS students are discouraged from continuing past the M.S. at Boston College to diversify their training).

4.2. Plan of Research & Timing within Program

Students are normally expected to stay in the same lab as their undergraduate research lab for their M.S. thesis research, so research rotations are not required. Under special circumstances, students may switch laboratories following receipt of the B.S. degree, for example if there had been a close collaboration between faculty members. The idea is that the graduate research is an extension of the student’s undergraduate research and thus does not require the typical “ramp-up” training that is necessary for a newly-entering student. The student still must complete sufficient work as a graduate student to make an original contribution to scientific knowledge.

M.S. thesis committees for 5YBS/MS candidates should be formed and meet during fall of the Senior year, to frame the plan for M.S. thesis research. This committee would also review the student’s progress over the Senior year and the student’s tenure in the graduate program. Any research performed toward a Senior Thesis or a Scholar of the College thesis should not be

included in the master's thesis, other than as background information in the thesis Introduction or Discussion.

4.3. B.S./M.S. Requirements & Typical Program Schedule

A minimum of 20 graduate credits is required for the Master of Science degree as part of the combined 5 Year, B.S./M.S. program in Biology. This includes four of five Graduate Core Courses and one additional Biology-approved Graduate Elective Courses (e.g., BIOL5000+, BIOL8000+). Two of these core or elective courses may be counted toward both the B.S. and M.S. degree requirements.

Example of a Program for 5YBS/MS Students

Attendance at all Departmental Seminars and Data Clubs is expected of all full-time students

Semester One (Senior year):

Grad Core Biology course	2 credits
(or)Biology-approved Graduate Elective	2 or 3 credits
Research for B.S. if writing an undergraduate thesis, for M.S. if not writing B.S. thesis	

Semester Two:

Grad Core Biology course	2 credits
(or)Biology-approved Graduate Elective	2 or 3 credits
Research for B.S. if writing an undergraduate thesis, for M.S. if not writing B.S. thesis	

Summer session: M.S. thesis research

Semester Three (fifth year):

Grad Core Biology course	2 credits
(and/or)Biology-approved Graduate Elective	2 or 3 credits
Teaching Assistantship or Research Assistantship if available	

Semester Four (fifth year):

Grad Core Biology course	2 credits
(and/or) Biology-approved Graduate Elective	2 or 3 credits
Thesis Research	
Thesis defense if timing allows	

Summer session: Thesis defense if not completed in Spring semester

4.4 Thesis and Defense

The thesis and defense for the M.S. portion of the program follows the same rules as described in section 3.5.

4.5 Schedule and Time Limitations

As described above, applications to this program must be submitted prior to completion of the Junior year. Successful applicants are students with a well-established record of undergraduate research in a Biology Department laboratory and a strong academic record. All benchwork for the M.S. thesis project must be completed by the summer after the fifth year and the thesis must be successfully defended by the end of that summer. In rare instances, a waiver may be granted by the Graduate Program Director to defend at a later date, but not to do benchwork beyond that summer.

5. Ph.D. Program Data

5.1 Time to degree

Average time to degree for 61 students who graduated between 2010 and 2019 was 5.8 years.

5.2 Publications

Although not a strict Program requirement, there is a very high expectation that all students will publish their thesis work in scientific journals. Moreover, the student's Research Advisor may require submission/publication of first-author papers as a requirement of completing the PhD. With very few exceptions, all students do author or co-author papers, with an average of 3-5 papers/student. These numbers vary from student to student based on the nature of the projects involved.

5.3 Placement data

Nearly half of the students graduating between 2010 and 2019 obtained an academic postdoctoral position upon graduation. The majority of the remaining students took positions in industry. Here is a sample of the placements.

ACADEMIC PLACEMENTS	NON-ACADEMIC PLACEMENTS
Baylor College of Medicine Beth Israel Deaconess Medical Center Boston University School of Medicine Broad Institute of Harvard and MIT Cleveland Clinic Emmanuel College Emory University School of Medicine Freie Universität Berlin Harvard Medical School Harvard Medical School/ Boston Children's Hospital Massachusetts General Hospital Massachusetts Institute of Technology Stanford University University of California, San Francisco University of Chicago University of Oregon University of Utah University of Wisconsin-Madison Uppsala University Vanderbilt University	Article One Partners AstraZeneca BERG Health Biogen Cell Signaling Technology Dovetail Genomics Excelimmune Facebook Fenway Community Health Google Human Metabolome Technologies Illumina Jackson Laboratories Maine Medical Center Momenta Pharmaceuticals Nektar Therapeutics New England Biolabs Novartis Perkin Elmer Renovo Neural, Inc Sanofi/Genzyme Seven Bridges Genomics Trinity Partners

6. Resources at Boston College

Department		Resource Links
Higgins Hall	BC Biology	https://www.bc.edu/bc-web/schools/mcas/departments/biology.html
	Biology Graduate Program	https://www.bc.edu/content/bc-web/schools/mcas/departments/biology/graduate.html
Gasson Hall	Morrissey College of Arts & Science (MCAS) Contact Info	https://www.bc.edu/bc-web/schools/mcas/about/contact.html
	MCAS Graduate Page	https://www.bc.edu/content/bc-web/schools/mcas/graduate.html
	MCAS Current Student Page	https://www.bc.edu/content/bc-web/schools/mcas/graduate/current-students.html
	MCAS Policy & Procedure Page	https://www.bc.edu/content/bc-web/schools/mcas/graduate/current-students/policies-and-procedures.html
Lyons Hall	Student Services	
	Student Services Graduate Page	https://www.bc.edu/content/bc-web/offices/student-services/registrar/academic-forms.html#graduate_forms
	Student Services Medical Insurance	https://www.bc.edu/bc-web/offices/student-services/billing-student-accounts/medical-insurance.html
	Student Services Billing & Student Accounts	https://www.bc.edu/content/bc-web/offices/student-services/billing-student-accounts.html
Maloney Hall	Student Affairs	https://www.bc.edu/content/bc-web/offices/student-affairs.html
	Student Affairs Policies and Student Guide	https://www.bc.edu/content/bc-web/offices/student-affairs/about/university-policies.html https://www.bc.edu/content/bc-web/offices/student-affairs/how-can-we-help.html
Thea Bowman House	Office of International Students and Scholars	https://www.bc.edu/offices/oiss/
Boston Consortium	Consortium/Cross Registration	https://www.bc.edu/bc-web/offices/student-services/registrar/course-registration/cross-registration.html
	Brandeis	http://www.brandeis.edu/registrar/schedule/search.php
	Tufts	https://gsbs.tufts.edu/academics
	BU	https://www.bu.edu/link/bin/uiscgi_studentlink.pl/uismpl/1214357354?ModuleName=univschs.pl
Waul House	Vice Provost of Research	https://www.bc.edu/content/bc-web/research/sites/vice-provost-for-research.html
	Core Facilities	https://www.bc.edu/content/bc-web/research/sites/vice-provost-for-research/about/research-facilities.html
	Research & Scholarship Integrity	https://www.bc.edu/content/bc-web/research/sites/vice-provost-for-research/integrity-and-compliance.html
Carney Hall	Office of Environmental Health and Safety	https://www.bc.edu/offices/publicsafety/ehs.html
	CITI Training	https://about.citiprogram.org/en/homepage/
	University Libraries	https://library.bc.edu/
	O'Neill Library Home	https://libguides.bc.edu/oneill
	The Center for Teaching Excellence (CTE)	https://www.bc.edu/offices/cte.html
	Technology Help 617-552-HELP ITS@BC.edu This has a wealth of Information!	https://www.bc.edu/offices/help/
	Transportation, Parking, Shuttles	https://www.bc.edu/content/bc-web/offices/auxiliary-services/sites/transportation-parking.html
	AGORA Peoplesoft HR	Payroll, Banking