

GRADUATE STUDENT
HANDBOOK

2024-2025

Department of Biology



Baylor University

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Foreword

The original *Graduate Student Handbook* was compiled in 1968, and was revised in 1970, 1972, 1974, 1978, 1981, and by the departmental Graduate Committee in 1993, 1995, 1997, 1998, 1999, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, and each year 2013-2024. The purpose is to provide a convenient source of information for graduate students and faculty concerning Biology Department policies and pertinent University Graduate School regulations. In the establishment of departmental policies, every effort has been made to comply with University Graduate School guidelines.

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Objectives of the Program

The Graduate Program of the Biology Department endeavors to provide a diverse, inclusive, academic atmosphere in which graduate students and faculty can work together as a community of scholars. Through the free exchange of information, it is our goal that each student will broaden their intellectual perspectives, prepare for a productive career, and realize their potential as an individual and as a responsible and informed member of society.

It is our intent to educate future biologists to be well-rounded scholars who exhibit proficiency in their chosen academic field. Graduate students in the Department of Biology should have a broad knowledge of basic concepts in biology, usually obtained through either an undergraduate degree in biology or an allied field. This foundation helps the student (1) promote self-motivated learning in a specialized field of biology, (2) understand the methods employed in biological investigation and (3) proceed toward making their own contribution to the scientific community.

Once a student has completed their graduate degree(s), they should possess an academic background adequate to enable the graduate to conduct research and teach courses in basic biology. With a broad-based competency, the student should be prepared for a successful career in a variety of biology-related fields.

Program of Study: Doctor of Philosophy in Biology

The intent of the doctoral program is to develop our students into excellent scientists who have unique expertise in a subdiscipline of biology. This program involves an original research experience culminating in an approved dissertation. It is expected that the doctoral graduate will be properly equipped with the knowledge and training needed to independently conduct research and to teach introductory biology and advanced topics in their area of specialty.

Students may focus their studies within one of two available degree tracks, though many of the faculty research programs and course offerings bridge these tracks:

- (1) Ecology, Evolution, and Organismal (EEO) biology or
- (2) Cellular, Molecular, Health, and Disease (CMHD) biology

Program Objectives

1. Graduate students are expected to be proficient in core areas of biology, especially those relevant to their degree track and dissertation research. Students are expected to be proficient in at least 3 of these core areas: cell and molecular biology, global health and disease, genetics, physiology, ecology, and evolution. We rely on the Preliminary Examination committee to determine core areas as fundamental to the student's doctoral education.
2. Graduate students will demonstrate familiarity with the relevant literature, and expertise in experimental design, collection and analysis of data, and interpretation of results in subject areas pertinent to the student's dissertation research.
3. Students will become self-sufficient, independent scientists as demonstrated by presentations at conferences of international scientific societies and publication of their research in reputable, peer-reviewed, scientific journals.

Assessment of Program Objectives

1. Students will be required to fill out annual reports each December. These reports will first be submitted to their research advisor for additional input before being submitted to the Graduate Program Director. These reports will be reviewed and returned, with or without recommendations as necessary.
2. The *written preliminary exam* is administered to each doctoral student usually during the fourth semester of the student's program (typically Spring of second year). Advanced students with M.S. degrees may petition to take the exam near the end of their first year, with the cohort of 2nd year students. This exam is part one of two for being admitted into candidacy.
3. The *dissertation proposal defense* will be administered to each doctoral student after achieving a passing score on the written preliminary exam. This oral defense typically occurs in the summer between the 4th and 5th semesters or the fifth semester. This defense

is the final part for being admitted into candidacy. Students may defend their proposal prior to the written preliminary exam under unusual circumstances. These students typically would take the written exam in their 2nd semester.

4. The *dissertation defense* is the culmination of several years of course work and independent research. The defense serves as the student's *final exam*. Students must complete a multi-chaptered dissertation (at least 3 chapters, each representing work equivalent to a peer-reviewed publication in a journal considered rigorous and reputable by the advisor and PhD committee) and defend the research therein in public to their dissertation committee. The students' publications may be used as chapters provided that a statement of work indicating the specific contributions of the student is provided. Successful defense of proposed research is the final milestone and signifies maturation into an independent, self-sufficient biologist worthy of the Doctor of Philosophy degree in Biology. Please refer to the Timetable for Doctor of Philosophy in Biology near the end of this document for a detailed timetable of steps and required benchmarks during the program of study.

Coursework

Required coursework is identical for EEO and CMHD students with one important exception: CMHD students must enroll in three (3) sections of BIO 6101 (Research Rotations) in their first semester, although all students are eligible to enroll in BIO 6101. Here is a summary of course work requirements for the Biology PhD:

1. A minimum of 78 semester hours is required for the Ph.D.
2. At least 40 of the 78 semester hours must consist of course work, excluding BIO 6V10, Dissertation Prospectus Research and BIO 6V99, Dissertation.
3. A minimum of 28 of the 40 hours of course work must be 5000-level or higher.
4. The following courses are required:
 - Research Methods in Biology I (BIO 5201, 2 hours)
 - Research Methods in Biology II (BIO 5202, 2 hours)
 - Statistics (STA 5300, 3 hours, or comparable course)
 - Graduate Scientific Communications (BIO 5101, minimum 2 hours)
 - Topics in Biology (BIO 5100, minimum of 3 hours)
 - Research Proposal Writing and Development (BIO 5349 or comparable course)
 - *CMHD students only*: Research Rotations (BIO 6101, 3 hours/sections).
5. A maximum of 8 combined hours of BIO 5100 (or other approved seminars) may count toward degree requirements; repeat credit requires change in topic from previous registrations.
6. Not more than 12 hours of 4000-level course work may be applied to the 40 hours of course work. For 4000-level courses to apply toward the Ph.D., the courses *must be listed in the [Graduate Catalog](#) and the student must do additional work beyond that required of undergraduates in that course. Not all 4000-level courses are eligible for graduate credit.*

7. A maximum of 9 hours from 5V90 can be applied toward the 40 hours of course work, and we discourage students from taking 5V90 hours when other 5000-level BIO courses are offered in any given semester. 5V90 is intended to be a focused, special problems course with a specific faculty member, and credits for that course must reflect structured course of study with a rubric for grading.
8. No coursework at the 1000, 2000, or 3000 levels will count toward the Ph.D. Further, Baylor will not provide tuition remission for courses that do not count toward graduate credit. *The graduate student must pay for courses that are not graduate level and are not approved courses by your dissertation committee.*
9. Dissertation Prospectus Research (BIO 6V10, not required, no minimum, maximum 4 hours) and Dissertation (BIO 6V99, required, minimum of 12 hours, maximum 40 hours) generally comprise the remaining 38 semester hours, although a portion may be devoted to additional course and laboratory work at the discretion of the student's advisory/dissertation committee.
10. Students who are preparing to take the written preliminary exam or dissertation proposal defense can begin dissertation research by registering for BIO 6V10, Dissertation Prospectus Research during that semester and the transition period from one exam to the next. The main purpose of BIO 6V10 is to allow students to focus heavily on completing the dissertation proposal without having to register for additional course work. BIO 6V10 and BIO 6V99 (Dissertation) are both considered full-time equivalent courses if registered for as few as one (1) credit hour. Please see the Baylor Graduate School Catalog for more information about full-time status as it relates to course work and semester hours.

Transfer Credits

Students entering the program with graduate-level course work may petition to apply up to 24 semester hours of approved courses toward the Ph.D. Courses must be graduate level at the preceding institution and have been earned in a graduate degree (graduate courses taken during an undergraduate degree **cannot** be transferred). If not, they are ineligible for transfer, even if Baylor has a similar course offered at graduate level. *Students do not need to identify equivalent courses at Baylor to transfer graduate-level coursework*, but equivalent courses may be petitioned so that students are exempt from required courses (e.g., graduate-level statistics, STA 5300). Thesis hours (i.e., 5V99 or equivalent) are not transferable toward doctoral requirements. Please refer to the form "Graduate School Petition" in Appendix 1 for petitioning for transfer credits. Student's transferring credits from a Master's degree program and with significant research experience may elect to proceed to candidacy ahead of schedule. Please see the section on the candidacy exam for alternative arrangements.

The process for transferring graduate credits cannot be initiated until after classes have started for your first semester. To initiate this process, email your Graduate Program Coordinator an official copy of your graduate transcripts so that they can begin the petition process.

Courses outside the Major Field

Appropriate courses from other departments may be taken upon approval of the dissertation committee. Relevant graduate courses in the departments of Anthropology (ANT), Psychology and Neuroscience (PSY/NSC), Computer Science (CSI), Geology (GEO), Statistics (STA), Chemistry and Biochemistry (CHE), Environmental Science (ENV), Human Health, Performance, and Recreation (HHPR) or other departments may be highly relevant to individual student's program of study.

Residence Study

A minimum of 1 academic year of study must be undertaken in residence at Baylor.

Teaching

All doctoral students are required to fulfill a one-year teaching experience under the mentorship of a faculty member. This is satisfied by serving as a teaching assistant (TA) in lectures or laboratories of one or more undergraduate classes. Alternatively, this requirement may be satisfied by other college-level teaching experiences (e.g., instructor of record at community colleges or as a graduate student at a previous university). Students designated as instructor-of-record must complete the Teaching Assistant Preparation Program (TAPPS) offered through the Baylor Graduate School or a similar preparatory course on pedagogy. Participation in these teaching preparatory programs is added to the student's permanent transcript.

Minimum Grade Requirements

All graduate students in Biology are expected to maintain a minimum GPA of 3.0 throughout their time in the program. In accordance with Graduate School policy, any student whose Baylor graduate GPA falls below 3.0 will be placed on probation. The student must restore their GPA to 3.0 by the end of the next 9 credit hours of coursework in order to remain in the graduate program. *The student is not eligible to receive financial assistance from the University during the probationary semester(s).*

Seminar Attendance Policy

Students must attend a minimum of 50% of all weekly Biology research seminars. Exemptions may include but are not limited to conflicting research or teaching activities. Failure to attend may result in probation and loss of funding from the department.

Publication Requirement

Published work demonstrates a student's capability as an active contributor to their academic discipline. The quality and quantity of peer-reviewed publications at the time of graduation will strongly influence the probability of a student receiving invitations to interview for jobs, particularly in academia. The peer-review process also provides an external review of the quality of the student's research.

Students must publish *at least* one first-authored, primary research paper from their dissertation research to progress to the PhD Dissertation Defense. That is, students may not defend their dissertation until *at least* one paper has been accepted for publication in a peer-reviewed journal that is deemed reputable and rigorous by the advisor and PhD committee.

The student must be the first author but may have secondary authors on this paper, including other students. Papers that are considered *in press* must be documented through communications with the journal's editorial staff. **Publication requirements may vary with faculty (i.e., some may require more than one to be accepted before allowing a student to progress to the Ph.D. Dissertation Defense); therefore, students are strongly encouraged to discuss this early on in their program with their advisor.**

All publications submitted for this requirement will be founded on research and data collected while in residence in the Baylor University's Department of Biology doctoral program. Prior to scheduling the dissertation defense, students must show evidence to the Graduate Program Director of having authored a *minimum* of one original manuscript that has been published or accepted for publication.

Any manuscript developed based on research conducted as a part of the biology doctoral program at Baylor must first be edited and approved by your advisor, who should also be a co-author on the manuscript (except in very rare circumstances). Moreover, submission of any paper manuscript based on research conducted at Baylor *must be approved by your advisor as well as any co-authors*, such that your advisor and all co-authors are aware that the paper has been submitted and supported the decision to submit the paper to the selected journal. **Failure to follow this procedure is unethical and may result in suspension or dismissal of a student from the program.**

Lab Research Rotations

Research Rotations (BIO 6101) are an integral part of the CMHD degree track experience. Rotations assist students in their choice of research advisor, allow students to demonstrate research competence, and provide an opportunity for students to become acquainted with different research areas in the department. All first-year PhD students concentrating in CMHD are expected to take and pass three rotations with three different faculty members during their first semester. One, but no more than one, faculty member who is appointed to the Biology department as a secondary appointee may serve as a rotation advisor. Most students will be matched with their dissertation lab after three rotations.

Following acceptance to the graduate program, students should communicate with faculty members about possible rotation research projects and to obtain permission to enter a rotation in their lab. If agreed, each incoming student should then email the Graduate Program Director and Graduate Program Coordinator their rotation priorities by July 1st. The student will receive confirmation of the order of rotation assignments prior to the beginning of the Fall semester.

Rotation Presentations

After each of the three required rotations, students present rotation talks in which they briefly describe their rotation projects, including the background and goals underlying the project, any specific accomplishments achieved during the rotation period, as well as possible next steps. Consultation with your rotation advisor and/or practice presentations in lab meetings are strongly advised.

Student-Advisor Matching

The purpose of rotations is to provide students in-lab experience as well as an opportunity to evaluate potential graduate advisors. This also provides an opportunity for faculty to evaluate students. *No student should assume that completion of a rotation constitutes approval for joining a specific lab.* Instead, students should approach rotation advisors, following completion of the rotation, to indicate their desire to either join the lab or decline from joining the lab so that mutually agreeable matches can be determined. Upon completion of the third rotation, a prioritized list of prospective graduate advisors must be submitted to the Graduate Program Coordinator, who, in consultation with the concerned faculty, will facilitate matching of students with advisors.

When a match with the top choice is not possible, the student will likely be matched with one of their alternative choices. If no agreeable match can be determined between student and any of the rotation advisors, the Graduate Program Director and Department Chair will carry the responsibility of either finding an alternative match (possibly a 4th rotation) or recommending that the student be dismissed from the program. CMHD students who are matched with a PhD advisor with a primary appointment in a different department will still need to complete the Biology program requirements. **Failure to match with a laboratory advisor by the end of the student's second semester will result in dismissal from the program.**

Role of the PhD Advisor and Preliminary Examination Committee

The PhD advisor will oversee the student's program of study and dissertation research. A signed advisor/advisee agreement is required to register for Summer courses. The student and the major advisor, with approval of the Graduate Program Director and Biology Graduate Committee, will appoint a dissertation committee consisting of at least two other members of the Biology graduate faculty (including secondary appointed Biology faculty from related departments), and one member of the Baylor graduate faculty from outside the Department of Biology, also known as an Outside Reader, and an additional fifth member who can be a Baylor faculty member or from a different academic institution.

Committee members who are not Baylor faculty must be approved by the Graduate Program Director to ensure their credentials are sufficient to serve on a PhD committee. Requirements for a non-Baylor committee member include, at a minimum, a PhD in Biology or a closely related field, expertise relevant to the student's research, strong record of publication and grant funding, and a current appointment at university or major research facility or institution (e.g., Smithsonian, Center for Disease Control). Prior to inviting any non-Baylor scientists to serve on a committee, please submit a current CV of the prospective outside committee member and a letter of justification to the Graduate Program Director for review and approval.

This committee must be appointed no later than 4 weeks prior to the end of the first summer (prior to the start of the Fall semester of their second year) but may be appointed sooner. The Preliminary Examination committee will be responsible for guiding the student as they first prepare for the written preliminary exam and then for the dissertation proposal defense. The Preliminary Exam committee must be approved by the Graduate Program Director. Details about the written exam and proposal defense are presented in the upcoming sections of this document.

First Committee Meeting

In preparation for the preliminary exam, the student must schedule a first committee meeting during the first semester of their 2nd year. The objectives of this meeting should primarily be to discuss the rationale for and scope of the research topic. The committee should also ensure the student has adequate background knowledge and methodological training to pursue this topic.

Preliminary Examination

The preliminary exam consists of two parts: 1) written preliminary exam and 2) dissertation proposal defense. The preliminary exam marks the transition between the coursework and research phases of the studies of the Ph.D. student. It provides the student with the opportunity to demonstrate not only their knowledge of the topics of biology, but the ability to apply that knowledge in the way that is traditionally associated with the degree. The exam is meant not only to assess the student's knowledge, but is typically detailed and open ended, allowing the committee to evaluate the ability of the student to apply their knowledge in different contexts.

Taking the Preliminary Exam is typically initiated in the Spring of Year 2 (semester 4) and completed by the Fall of Year 3 (semester 5). Student's entering the PhD program with a MS degree and with significant research experience *may* elect to initiate the Preliminary Exam in the Spring of Year 1 (semester 2) and complete it by the Fall of Year 2 (semester 3). This is *optional* and such students may also choose to initiate the Preliminary Exam in the Spring of Year 2 (semester 4). If a student is not prepared to initiate the Preliminary Exam by the Spring of Year 2 (semester 4), a written explanation from the student's mentor must be submitted to the Graduate Program Director. Only highly unusual circumstances shall be designated sufficient cause to delay the Preliminary Exam.

Mechanics of the Written Preliminary Exam (Preliminary Exam, Part I)

Students typically register for BIO 6V10 Dissertation Prospectus Research to prepare for the written preliminary exam. One (1) semester hour of BIO 6V10 is considered full-time equivalent (FTE), and since there is a maximum of four (4) 6V10 credits allowed per student, it is highly recommended that students only register for one (1) hour per semester. *Note that BIO 6V10 will not count toward degree requirements until all coursework is complete.*

The exam will be composed of eight (8), two-hour examination sessions, conducted over a minimum of two days and administered late Spring or early Summer. The exam content will be specific to each student. Each student's Preliminary Examination committee members will write two **pairs** of questions (n=4 committee members, outside member excluded for the written exam). The student will only have to provide an answer to one question from each pair during each session (8 pairs of questions, but only 8 answers). Questions will be focused heavily on both fundamentals and specifics related to the student's area of study, particularly their anticipated dissertation research.

For Students: You are expected to interact with your committee members **several months** prior to the written preliminary exam. Committee members are expected to help focus the student's preparation to the specific areas they intend to test the student. *It is not acceptable*

for committee members to expect students to know the content of entire textbooks (e.g., “know this book for the exam”), nor is it reasonable to assign readings that either are not relevant to the student’s research or unduly voluminous. It is reasonable and appropriate for faculty to define a relatively narrow range of topics for the student to master, with specific readings to support their mastery of the topic in preparation for the written exam. It is imperative for students to meet with their committee members as early as possible for guidance on their research and written preliminary exam topics.

For Advisors: Questions from each Preliminary Exam committee member should first be *submitted to the student’s PhD advisor at least 4 weeks prior to the exam.* The PhD advisor should then compile the questions, ensure that there is minimal overlap or duplication, and submit them to the Graduate Program Director and Graduate Program Coordinator at least 2 weeks prior to the exam so that the Graduate Committee has a record of the questions, can vet the questions, and compile the exams. *Again, the sets of questions answered by each student will be unique to that student and will be written by their own respective PhD Examination Committee.*

Students will be required to type their answers without reference or access to any other materials, directly into Canvas. All answers will be screened for plagiarism. Any breach of the Honor Code, including the use or presence of unauthorized materials, will result in automatic failure and will be considered as a violation of the Graduate School's policy on professional conduct with the potential for dismissal from the program.

Following the examination, answers will be distributed to faculty members for grade assignment. Graded answers will be distributed to the student and Biology Graduate Committee. ***Students must receive an average of at least 70% from each committee member.*** The Graduate Program Director will certify exam results. Students may view graded exams after notification of results. Specific outcomes are discussed below.

- Pass with Honors: Student scores ≥ 90 on all questions.
- Immediate Pass: Student scores ≥ 80 on all questions.
- Conditional Pass: Should a student receive a score less than 80 on one or more of the preliminary exam questions, that student shall be required to sit for a second attempt at the relevant question(s) and answer the unselected question from the original pair(s).
- Partial Fail: Should a student score an average < 70 on a pair of questions written by one of the four committee members, the student will be placed on probation and must pass a comprehensive, remedial oral exam administered by the four committee members and under the supervision of either the Graduate Program Director or a member of the Biology Graduate Committee, if the Graduate Program Director is not available. The remedial oral exam must take place before the beginning of the student’s fifth semester (fall of the third year) and must result in a unanimous recommendation to pass the student. If one or more faculty members vote to fail the student during the remedial oral exam, the student will be dismissed from the Biology Ph.D. program but will be offered the option to complete any of the Biology Department’s Master’s degrees.
- Fail: Should a student fail the questions written by two or more committee members, students will not have the option of taking the remedial oral exam but will be immediately dismissed from the Ph.D. program. However, these students will have the same option to complete any of the department’s Master’s degrees but must fund their own tuition and stipend unless their advisor has an extramural grant that includes tuition

remission and stipend support. Dismissal from the Ph.D. program results in the loss of any tuition scholarships or Baylor-funded stipends (teaching assistantships). Thus, students who elect to complete a Biology Master's degree following dismissal from the Ph.D. program must fund their own tuition unless their advisor has an extramural grant that includes tuition remission and stipend support.

Mechanics of the Dissertation Proposal Defense (Preliminary Exam, Part II)

Students that pass the written exam are automatically qualified to progress on to the oral presentation and defense of their dissertation topic; although it is permitted that some students may complete the proposal defense and oral exam prior to the written exam (please consult with the Graduate Program Director).

Important: Proposals must describe a minimum of 3 chapters, each equivalent to a publication. The publication requirement does not mean that a student can defend their dissertation once one chapter is accepted for publication. This requirement means that a student cannot defend until one chapter is accepted, but this is secondary to having a complete, defensible dissertation comprised of a minimum of 3 chapters, reviewed and approved by their advisor and committee as being ready for defense. Therefore, the Dissertation Proposal must be structured so as to yield this result.

Students and Preliminary Exam committee members (now including the “outside” committee member, n=5) should discuss and determine the schedule for proposal defense *two months before the exam*. Once the student has completed a draft proposal document, a digital (e.g., MS Word or PDF) copy will be distributed to all dissertation committee members *a minimum of 2 weeks before the proposal defense*. The proposal defense must be completed by the end of the fifth semester. If a student does not complete their proposal defense by their fifth semester, they will be placed on probation, which could result in the loss of stipend and tuition support. Should the student fail to pass the proposal defense by the end of the sixth semester (spring of the third year), the student will be dismissed from the Ph.D. program and given the option to complete any of the department's Master's degrees but must fund their own tuition unless their advisor has an extramural grant that includes tuition remission and stipend support.

It is strongly recommended that the proposal be structured similarly to research grant proposals (NSF or NIH F31) and not exceed 15 pages. The following key topics must be included:

1. Hypotheses to be tested and/or, research objectives or specific aims derived from your research hypothesis.
2. Description of the key background information and preliminary results that serve as the basis for the hypotheses,
3. Designs of experiments to test the hypotheses, accomplish specific aims or objective, and a discussion of possible outcomes and interpretation of those outcomes.
4. A rationale for each experimental approach, possible problems, or alternative plans for the proposed research.
5. A timetable for completion.
6. Titles of manuscripts and expected journals in which to publish research from the dissertation.

During the proposal defense, the student is expected to present a summary of the significance and rationale of the proposed experiments and anticipated outcomes (~30-45 minutes). This part of the defense is public, and members of the Biology faculty and student body may ask questions following the presentation. The presentation is followed by a private, closed-door session directed by the Preliminary Examination committee concerning such issues as the proposed research, alternative hypotheses, and projected outcomes (no more than 3 hours total, including the public presentation).

The Ph.D. advisor is considered *ex officio* during the proposal defense and is prohibited from voting or attempting to influence the vote of other committee members. The Ph.D. advisor may ask questions but is prohibited from helping the student answer questions or interrupting committee members. Committee members are expected to report deviations from these protocols to the Graduate Program Director and/or Department Chair. Advisors found to have interfered with the student's proposal defense will receive a formal reprimand from the Department Chair and Graduate Program Director which may result in a probationary period when the faculty member will not be permitted to support new students on Departmental assistantships.

The four voting members of the proposal defense committee (all members excluding the Ph.D. advisor) should discuss the student's performance on the oral exam **in the absence of the Ph.D. advisor (i.e., the Ph.D. advisor should leave the room along with the student so that each committee member feels free to express their opinion and submit their vote without influence of the Ph.D. advisor)**. One committee member should be responsible for tallying the votes, preferably the Outside Reader, and subsequently report the outcome of the exam to the Ph.D. advisor and student after calling them back into the exam room. ***It is critical that votes of individual committee members remain anonymous to the Ph.D. advisor.***

The results of the Proposal Defense should be recorded using the corresponding form found in Appendix 5. Once completed, this form must be turned into the Graduate Program Coordinator.

A passing vote from 3 of 4 committee members, excluding the Ph.D. advisor, will result in either an unconditional or a conditional pass. If students receive a conditional or unconditional pass, they will progress to candidacy and able to enroll in BIO 6V99 Dissertation. However, students who pass conditionally are expected to respond, in writing, to each concern raised by committee members and revise their proposal accordingly. These requirements shall be documented using the form in Appendix 5.

Should a student receive only 2 passing votes out of 4 (50% score), the student must significantly revise their proposal in accordance with their committee recommendations and perform a second, closed-door defense of the proposal before the end of the following semester (spring if taken in the fall, summer if taken in the spring). If a student receives a failing score, they must continue to enroll in BIO 6V10 Dissertation Prospectus Research until they are able to refile the form with a pass. Once that has been achieved, the student will progress to candidacy and be able to enroll in BIO 6V99 Dissertation. A unanimous vote to pass the student is required during the second defense; otherwise, the student is dismissed from the Ph.D. program and will be offered the option of completing any of the department's

Master's degrees at their own expense (loss of stipend, tuition) unless supported by extramural funding that includes tuition remission and stipend support.

Students who receive only 0 or 1 passing votes out of 4 (25% or lower passing score) will be dismissed from the Ph.D. program without the opportunity to revise and re-defend their proposal. Students will be offered the option of completing any of the department's Master's degrees at their own expense (loss of stipend, tuition) unless supported by extramural funding that includes tuition remission and stipend support.

Scheduling of Proposal Defense

1. In consultation with the Preliminary Exam committee, the student arranges the date and works with the Graduate Program Coordinator to secure the location of the examination. The student *must* work with the Graduate Program Coordinator to submit the departmental announcement at least 10 working days before the event. *Failure to do this could result in a nullification of the defense and a rescheduling of the event!*
2. All exams must be held when Baylor is officially in session (Fall, Spring, or Summer terms). No exams may be scheduled on holidays or during interims between terms. Exams can be scheduled during final exams, however.
3. All oral exams must be scheduled between 8:00 AM and 5:00 PM such that at least 3 hours are available for the public presentation and closed-door defense with the Preliminary Exam committee. Exams may not exceed 3 hours.
4. A proposal defense may not overlap times with another proposal or dissertation defense within the Biology department (If Defense A starts at 12:00pm, Defense B may not start after 9:00am or before 3:00pm).

Mid-Candidacy Committee Meeting(s)

After completing the preliminary exam, students should meet annually with their committees. The objectives of these meetings should be to outline the progress made towards completion of the aims and towards publication of the results.

Once sufficient progress is observed, the purpose of the meeting may also include detailing remaining requirements for the candidate to defend. At the end of the meeting, the specific requirements that must be met for the advisor to permit the student to defend should be agreed upon. Typically, this will detail the number and status (published, in press, accepted with minor revisions, under review) of publications.

Dissertation Defense (Final Examination)

After completion of doctoral dissertation research, which culminates in a formatted document that represents a minimum of 3 publication-quality chapters, the candidate has a final oral examination involving presentation and defense of their dissertation. Approval from the research advisor and dissertation committee is required to proceed to a dissertation defense. An invitation to all members of the Biology faculty and graduate students should include the examination date, time, and place as well as the dissertation title and abstract at least 2 weeks

prior to the examination (see Appendix 1 for forms). Students must also submit a final draft copy of the PhD dissertation to the PhD committee no less than 2 weeks prior to the defense.

The public presentation should last approximately 45 minutes, with up to 15 minutes for questions from the audience. The remaining two hours are dedicated to a closed-door, dissertation defense between the Ph.D. candidate and the Final Examination Committee, **with the Ph.D. advisor serving as a non-voting member (ex officio)**. The dissertation defense may not last longer than three hours, including the public presentation.

The four voting members of the Final Examination Committee (all members excluding the Ph.D. advisor) should discuss the student's performance on the exam in the absence of the Ph.D. advisor (i.e., the Ph.D. advisor should leave the room along with the student so that each committee member feels free to express their opinion and submit their vote without influence of the Ph.D. advisor). One committee member should be responsible for tallying the votes, preferably the Outside Reader, and subsequently report the outcome of the exam to the Ph.D. advisor and student after calling them back into the exam room. It is critical that *votes of individual committee members remain anonymous to the Ph.D. advisor*.

A passing vote from 3 of 4 committee members, excluding the Ph.D. advisor, is required to pass the dissertation defense.

Should a student fail the dissertation defense, the student will be allowed to significantly revise the dissertation in response to the committee recommendations and defend the dissertation a second time in a closed-door meeting with the committee within 6 months of the original defense. Failure to pass the second defense results in termination from the Ph.D. program with the option of completing one of the department's Master's degree programs at the student's own expense.

Results from the dissertation defense should be recorded using the appropriate form found in Appendix 5. This form needs to be completed and sent to the Graduate Program Coordinator.

Scheduling of Dissertation Defense

1. In consultation with the dissertation committee, the student arranges the date and works with the Graduate Program Coordinator to secure the location of the examination. The student *must* work with the Graduate Program Coordinator to submit the *Announcement of Oral Exam* form to the Graduate School at least 10 working days before the event (Appendix 1). *Failure to do this could result in a nullification of the defense and a rescheduling of the event!*
2. All exams must be held when Baylor is officially in session (Fall, Spring, or Summer terms). No exams may be scheduled on holidays or during interims between terms. Exams can be scheduled during final exams, however. *This rule is strictly enforced by the Graduate School.*
3. All oral exams must be scheduled between 8:00 AM and 5:00 PM such that at least 3 hours are available for the public presentation and closed-door defense with the dissertation committee. Exams may not exceed 3 hours.

Please refer to the Timetable for Doctor of Philosophy in Biology near the end of this document and the corresponding graphical representation of the timetable (Appendix 2) for a succinct summary of the prescribed program of study and related deadlines

Master's Programs

The Department of Biology has three available degree programs in which our master's students are enrolled: (1) Master of Science in Biology of Global Health (2) Master of Science in Biology and (3) Master of Arts in Biology - Health Profession. The M.S. in Biology of Global Health is only available to students admitted to Baylor Biology's 4+1 B.S./M.S. program.

Program of Study: Master of Science in Biology of Global Health

The B.S. Biology/M.S. in Biology of Global Health program is a five-year program of study. This degree program will allow highly qualified students the opportunity to obtain both the B.S. degree (124 hrs) and the M.S. degree (30 hrs) in five years of full-time study. The program allows dual hours of dual undergraduate/graduate credit to permit an accelerated path to an advanced degree.

In addition, to the M.S. portion of this degree program ([Track 1](#)), students may additionally elect to pursue a certification in Tropical Medicine and Biotechnology ([Track 2](#)).

Program Objectives

1. Master's-level proficiency is expected in Biology of Global Health.
2. Students will demonstrate familiarity with the relevant literature, and expertise in experimental design, in collection and analysis of data, and in interpretation of results in subject areas pertinent to the student's thesis research.
3. Students will progress toward entry into the scientific community through participation in professional activities, such as attendance at professional conferences, publication of research findings, etc.

Assessment of Program Objectives

1. Students will be required to fill out annual reports each December. These reports will first be submitted to their research advisor for additional input before being submitted to the Graduate Program Director or BGH Program Director. These reports will be reviewed and returned, with or without recommendations as necessary.
2. Admission to Master's candidacy requires preparation and defense of a *thesis proposal*. The student must schedule a meeting with the M.S. committee to discuss and defend the proposed research. An oral presentation of the proposed research is not required but can be used if the major advisor requests it. The Outside Reader is not required to attend this meeting but should be invited and can be as involved as other members of the committee if they wish. The committee will scrutinize the proposal and ask questions about the relevant scientific literature, experimental design, collection and analysis of data, and interpretation of results. This proposal must be approved by the thesis committee before the candidate may register for Thesis, BIO 5V99. However, preliminary research conducted prior to the proposal defense, such as method development or pilot studies, may be included in the proposal and, in many cases, is strongly encouraged.

3. M.S. in Biology students sit for an *oral examination and thesis defense* toward the end of the final semester of studies (semester 9 or 10). Approximately half of the examination evaluates knowledge within the area of study. The other half of the examination pertains directly to the research thesis.

Undergraduate Coursework

1. Course Requirements
 - a. BIO 1305-1105
 - b. BIO 1306-1106
 - c. BIO 2301
 - d. BIO 2306-2106
 - e. BIO 3303
 - f. BIO 4302-4102
 - g. BIO 4001
 - h. At least one course from BIO 3342, 3350, 4306-4106, or 4308-4108.
 - i. At least one course from BIO 3315, 3320, 3366, 4365, 4386, 4405, or 4406.
 - j. At least one course from BIO 3322-3122, 4301, 4304, 4323, 4350, 4354, or 4431.
 - k. An additional 3 hours of upper-level Biology coursework
 - l. An approved BGH practical experience (BCM-TDR Internship and/or 3-week BCM-NSTM Summer Institute); optional for students in Track 1.
 - m. A grade of “C” or better in 34-37 hours of Biology courses used in the major and a GPA of 2.0 or higher on all BIO courses.
2. Required courses in other fields (A grade of “C” or better in all courses):
 - a. CHE 1301-1101
 - b. CHE 1302-1102
 - c. CHE 3331
 - d. CHE 3332
 - e. CHE 3238
 - f. MTH 1321
 - g. STA 2381
 - h. PHY 1408 and 1409; or 1420 and 1430; or 1420 and 1409
 - i. At least one course from ANT 4330, ANT 4325, ANT 4371, ANT 4373, PUBH 3351, PUBH 4340, GEO 4485, or other 4000-level non-BIO courses that are approved for graduate credit (see Graduate Catalog) and approved by BGH Program Director

Biology M.S. in Biology of Global Health Concentration (Track 1)

Graduate Coursework

1. A minimum of 30 semester hours, including at least 24 hours of coursework (the remaining 6 hours must be thesis research, BIO 5V99).
 - These 24 hours must include:
 - Research Methods in Biology I (BIO 5201, 2 hours)
 - Research Methods in Biology II (BIO 5202, 2 hours)
 - Statistics (STA 5300, 3 hours, or comparable biostatistics course)
 - Graduate Scientific Communications (BIO 5101, 1 hour)

2. Up to 12 hours of 4000-level coursework will count toward the degree. Most students who fulfill the requirements for 4000-level courses in the B.S. in BGH will simultaneously fulfill the maximum number of 4000-level course credits allowed for credit toward the M.S. degree in BGH, but those courses must be approved for graduate credit (see Graduate Catalog) and approved by the Program Coordinator. Courses appropriate for the BGH MS degree include:
 - BIO 4301 (Immunology)
 - BIO 4302-4102 (General Microbiology & Lab)
 - BIO 4304-4104 (Medical Entomology & Lab)
 - BIO 4306-4106 (Molecular Genetics & Lab)
 - BIO 4308-4108 (Cell & Developmental Biology & Lab)
 - BIO 4323-4123 (Parasitology & Lab)
 - BIO 4350 (Pathogenic Microbiology)
 - BIO 4353 (Neglected Tropical Diseases)
 - BIO 4360 (Applied and Environmental Microbiology)
 - BIO 4386 (Remote Sensing)
 - BIO 4405 (Limnology)
 - BIO 4406 (Aquatic Biology)
3. Up to 2 hours of Seminars in Biology (BIO 5100) may be applied to the 24 hours of coursework. Repeat credit requires change in topic from previous registrations.
4. Not more than 3 hours of Special Problems in Biology (BIO 5V90) may be applied toward the 24 hours of coursework.
5. Six of the 30 semester hours must be thesis research (BIO 5V99) leading to an approved thesis.
6. At least 12 hours of this coursework (excluding the 6 hours of 5V99) must be at the 5000 level.

Biology M.S. in Biology of Global Health Concentration (Track 2)

Graduate Coursework

1. A minimum of 30 semester hours, including at least 24 hours of coursework (the remaining 6 hours must be thesis research, BIO 5V99).

These 24 hours must include:

- BCM Core Courses: 6 hours.
 - Tropical and Emerging Infectious Disease (2 hrs)
 - Applied Epidemiology Biostatistics (2 hrs)
 - Vector Biology and Vector Borne Diseases (2 hrs)
- BCM Electives: 6 hours.
 - Biotechnology Operations (2 hrs)

- Preclinical Models in Biotechnology (2 hrs)
 - Bench to Bedside: Biopharmaceuticals, antigen discovery, production, and transition to the clinic (2 hrs)
 - Topics in Advocacy and Policy for the Neglected Tropical and Emerging Infectious Diseases (2 hrs)
 - Diagnostics of Neglected Tropical and Emerging Infectious Diseases (2 hrs)
2. Up to 12 hours of 4000-level coursework will count toward the degree. Most students who fulfill the requirements for 4000-level courses in the B.S. in BGH will simultaneously fulfill the maximum number of 4000-level course credits allowed for credit toward the M.S. degree in BGH, but those courses must be approved for graduate credit (see Graduate Catalog) and approved by the Program Coordinator. Courses appropriate for the BGH MS degree include:
- BIO 4301 (Immunology)
 - BIO 4302-4102 (General Microbiology & Lab)
 - BIO 4304-4104 (Medical Entomology & Lab)
 - BIO 4306-4106 (Molecular Genetics & Lab)
 - BIO 4308-4108 (Cell & Developmental Biology & Lab)
 - BIO 4323-4123 (Parasitology & Lab)
 - BIO 4350 (Pathogenic Microbiology)
 - BIO 4353 (Neglected Tropical Diseases)
 - BIO 4360 (Applied and Environmental Microbiology)
 - BIO 4386 (Remote Sensing)
 - BIO 4405 (Limnology)
 - BIO 4406 (Aquatic Biology)
3. Up to 2 hours of Seminars in Biology (BIO 5100) may be applied to the 24 hours of coursework. Repeat credit requires change in topic from previous registrations.
4. Not more than 3 hours of Special Problems in Biology (BIO 5V90) may be applied toward the 24 hours of coursework.
5. Six of the 30 semester hours must be thesis research (BIO 5V99) leading to an approved thesis.

At least 12 hours of this coursework (excluding the 6 hours of 5V99) must be at the 5000 level.

Research Guidelines for Tracks 1 and 2

Seminar Attendance Policy

All BU-resident (Track 1) BGH M.S. students *must attend a minimum of 50% of all seminars*. Exemptions may include but are not limited to conflicting research time commitments.

Advisor and Thesis Committee

Upon application, students should choose a particular professor with whom to conduct research. This professor is the research director (advisor). All students should have identified a faculty advisor during the application process prior to enrolling at Baylor. This professor advises not only in research, but also on the course of study, university and departmental policies, etc.

The advisor and the BGH Program Director in consultation with the student will select a thesis committee before the research is begun. The committee consists minimally of three professors (including the advisor), two of whom are members of the Biology Department faculty (including secondary appointed faculty from other departments) and the third from a Baylor department other than Biology (also can hold a secondary appointment in Biology, but one must be designated as the Outside Reader). Additional faculty may be included on the committee. The committee is involved in the development of the research plan, although the Outside Reader may play a lesser role.

Thesis Proposal

By the end of year 4, a thesis research proposal should be developed, presented to, and approved by the thesis committee. Formatting of the thesis research proposal should follow the guidelines of an NIH R21 research grant in terms of describing the Significance, Innovation, and Approach within 6 pages (non-inclusive of references). A copy of the proposal must be signed by the committee members and submitted to the BGH Program Director. Only those students who have submitted a signed copy of the Results of Proposal Defense form (Appendix 5) attached to their approved thesis proposal may register for thesis research (BIO 5V99).

The research proposal demonstrates to all involved that the student is acquainted with the literature relevant to the research problem. It demonstrates that the student understands how to apply the scientific method to this problem. It assures that the experimental design or research protocol involves the methods, materials, sample sizes, and statistical tests appropriate to the question. Basically, it ensures that the student knows what is to be done before the student proceeds. At the committee-student meeting, the above points should be addressed and discussed prior to approval of the proposal.

Preparation of the Thesis

A thesis summarizing the student's original research is required for the M.S. in Biology. The thesis should be prepared following the *CBE Style Manual: A Guide for Authors, Editors, and Publishers in the Biological Sciences*, 6th Edition, published by the Council of Biological Editors. In addition, the physical format of the thesis must be consistent with the **guidelines** set by the Graduate School.

Submission and Review of Thesis

The thesis is written as a collaboration between the student and the advisor. An important part of the education and experience involved in the M.S. in Biology is the production of a document explaining and describing the student's publishable, original research.

Development of the thesis will be a lengthy process typically requiring multiple revisions prior to submission to the committee. The student is expected to submit drafts to their advisor according to an agreed-upon schedule. Once the thesis reaches an advanced stage, the other members of the student's committee become involved. Changes required or requested by the committee members will be made prior to approval of the thesis.

Once the committee conditionally approves the thesis, the student can then schedule a thesis defense. The candidate should expect to make reasonable changes based on faculty comments made before and during the comprehensive oral examination; inclusion of such changes will be up to the major professor and the student. The appropriately revised thesis is then submitted to the thesis clerk in the Graduate School. It is the student's responsibility to be certain of deadline dates, pay the required fees, and meet all other Graduate School rules. See the **calendar** posted on the Graduate School website.

Final Comprehensive Oral Exam

During the last semester and after writing a satisfactory thesis that has been approved by the thesis committee, M.S. in Biology candidates must take the comprehensive examination. Results from the thesis defense should be recorded using the appropriate form found in Appendix 5. This form needs to be completed and sent to the Graduate Program Coordinator.

Description of Exam

Each Master's student must present an *exit seminar* to the Biology Department (faculty and students). Typically, the seminar is presented during the hour immediately preceding the final oral exam. The duration of the seminar is approximately 45 minutes.

Approximately half of the examination evaluates knowledge in fundamentals of Biology of Global Health. The other half of the examination pertains directly to the research thesis.

Scheduling of Oral Exam

1. In consultation with their committee, the student arranges the date and works with the Graduate Program Coordinator to secure the location of the examination. The student *must* work with the Graduate Program Coordinator to submit the *Announcement of Oral Exam* form to the Graduate School at least 10 working days before the event (Appendix 1). *Failure to do this could result in a nullification of the defense and a rescheduling of the event!*
2. The examination may not be taken sooner than 1 week (5 working days) after submission of the committee-approved thesis to the Biology Department. *The candidate is responsible for adhering to the official deadlines of the Graduate School and the departmental calendar for that particular semester.*
3. All exams must be held when Baylor is officially in session. No exams may be scheduled on holidays or during interims between semesters. *This rule is strictly enforced by the Graduate School.*
4. All oral exams must be scheduled between 8:00 AM and 5:00 PM such that at least 2 hours are available for the exam (excluding the preceding seminar).

5. A thesis defense may not overlap times with another exit seminar, thesis, proposal or dissertation defense within the Biology department (If Defense A starts at 12:00pm, Defense B may not start after 9:00am or before 3:00pm).

Examination Committee

1. Attendance at the seminar presented prior to the oral examination is open to the public, but the oral exam following the seminar is limited to the student's graduate committee only.
2. If a member of the Examination Committee cannot be present, the other members of the Examination Committee (in consultation with the BGH Program Director, if possible) shall appoint a replacement for the absent member.

Voting

1. All members of the Examination Committee shall vote on the proficiency of the candidate. Faculty members who participated in the exam, but who are not official members of the Examination Committee, are invited to discuss the candidate's performance, but are not eligible to vote.
2. Students must receive 2 passing votes out of 3 to pass the exam.
3. If a candidate fails the oral examination, the Examination Committee will discuss with the candidate the basis for the decision. The student may be granted an opportunity to retake the exam within 6 months. A second failure results in dismissal of the student from the program.

Please refer to the Timetable for the Master of Science in Biology of Global Health near the end of this document and the corresponding graphical representation of the timetable (Appendix 3) for a succinct summary of the prescribed program of study and related deadlines

Program of Study: Master of Science in Biology

The primary purpose of the M.S. in Biology is to develop in the student an area of biological expertise. This degree can be pursued in one of two emphases: (1) Ecology, Evolution, and Organismal biology (EEO) or (2) Cell, Molecular, Health, and Disease biology (CMHD). Such expertise is developed through coursework and an in-depth research experience that culminates in a thesis.

Secondarily, the student is expected to continue development of their knowledge in major areas of biology. In addition, candidates are expected to be familiar with research methods in biology and be capable of reading and interpreting original research in their fields of emphasis.

Because students are admitted to this program under the expectation of conducting research in pursuit of a thesis, **students are not allowed to switch to a non-thesis degree program (i.e. M.A.)** except under extreme conditions that must be approved by a majority vote of the Graduate Committee.

Program Objectives

1. Master's-level proficiency is expected in one of the two concentrations of biology in which the M.S. in Biology is offered: (1) Ecology, Evolution, and Organismal biology (EEO) or (2) Cell, Molecular, Health, and Disease biology (CMHD). Additionally, all M.S. in Biology students must demonstrate proficiency in their understanding of evolutionary history and processes.
2. Students will demonstrate familiarity with the relevant literature, and expertise in experimental design, in collection and analysis of data, and in interpretation of results in subject areas pertinent to the student's thesis research.
3. Students will progress toward entry into the scientific community through participation in professional activities, such as attendance at professional conferences, publication of research findings, etc.

Assessment of Program Objectives

4. Students will be required to fill out annual reports each December. These reports will first be submitted to their research advisor for additional input before being submitted to the Graduate Program Director. These reports will be reviewed and returned, with or without recommendations as necessary.
5. Admission to Master's candidacy requires preparation and defense of a *thesis proposal*. The student must schedule a meeting with the M.S. committee to discuss and defend the proposed research. An oral presentation of the proposed research is not required but can be used if the major advisor requests it. The Outside Reader is not required to attend this meeting but should be invited and can be as involved as other members of the committee if they wish. The committee will scrutinize the proposal and ask questions about the relevant scientific literature, experimental design, collection and analysis of data, and interpretation of results. This proposal must be approved by the thesis committee before the candidate may register for Thesis, BIO 5V99. However, preliminary research conducted prior to the proposal defense, such as method development or pilot studies, may be included in the proposal and, in many cases, is strongly encouraged.

6. M.S. in Biology students sit for an *oral examination and thesis defense* toward the end of the final semester of studies (semester 4 or 5; see Appendices 1 and 3). Approximately half of the examination evaluates knowledge in evolution and the two areas comprising the concentration (EEO or CMHD). The other half of the examination pertains directly to the research thesis.

Coursework and Research

6. A minimum of 30 semester hours, including at least 24 hours of coursework (the remaining 6 hours must be thesis research, BIO 5V99).
 - These 24 hours must include:
 - Research Methods in Biology I (BIO 5201, 2 hours)
 - Research Methods in Biology II (BIO 5202, 2 hours)
 - Statistics (STA 5300, 3 hours, or comparable course)
 - Graduate Scientific Communications (BIO 5101)
7. Up to 4 hours of Seminars in Biology (BIO 5100) may be applied to the 24 hours of coursework. Repeat credit requires change in topic from previous registrations.
8. Not more than 6 hours of Special Problems in Biology (BIO 5V90) may be applied toward the 24 hours of coursework.
9. Six of the 30 semester hours must be thesis research (BIO 5V99) leading to an approved thesis.
10. At least 12 hours of this coursework (excluding the 6 hours of 5V99) must be at the 5000 level. No more than 12 hours may be taken at the 4000 level, and 4000 level courses **MUST** be listed in the Baylor University Graduate Catalog (i.e., not all 4000 level courses are eligible for graduate credit).
11. No coursework at the 1000, 2000, or 3000 levels will count toward the M.S. Further, Baylor will not provide tuition remission for courses that do not count toward graduate credit. *The graduate student must pay for courses that are not graduate level and are not approved courses by your dissertation committee.*

Seminar Attendance Policy

Students *must attend a minimum of 50% of all seminars*. Exemptions may include but are not limited to conflicting research or teaching activities.

Advisor and Thesis Committee

Students should choose a graduate program largely for the purpose of studying with a particular professor. This professor is the research director (advisor). All students should have identified a faculty advisor during the application process prior to enrolling at Baylor.

This professor advises not only in research, but also on the course of study, university and departmental policies, etc.

The advisor and the Graduate Program Director in consultation with the student will select a thesis committee before the research is begun. The committee consists minimally of three professors (including the advisor), two of whom are members of the Biology Department faculty (including secondary appointed faculty from other departments) and the third from a Baylor department other than Biology (also can be a secondary appointment in Biology, but one must be designated as the Outside Reader). Additional faculty may be included on the committee. The committee is involved in the development of the research plan, although the Outside Reader may play a lesser role.

Thesis Proposal

By the end of the second semester, a thesis research proposal should be developed, presented to, and approved by the thesis committee. A copy of the proposal must be signed by the committee members and submitted to the Graduate Program Director and Graduate Program Coordinator. Only those students who have submitted a signed copy of the Results of Proposal Defense form (Appendix 5) attached to their approved thesis proposal to the Graduate Program Director and Graduate Program Coordinator may register for thesis research (BIO 5V99).

The research proposal demonstrates to all involved that the student is acquainted with the literature relevant to the research problem. It demonstrates that the student understands how to apply the scientific method to this problem. It assures that the experimental design or research protocol involves the methods, materials, sample sizes, and statistical tests appropriate to the question. Basically, it ensures that the student knows what is to be done before the student proceeds. At the committee-student meeting, the above points should be addressed and discussed prior to approval of the proposal.

Preparation of the Thesis

A thesis summarizing the student's original research is required for the M.S. in Biology. The thesis should be prepared following the *CBE Style Manual: A Guide for Authors, Editors, and Publishers in the Biological Sciences*, 6th Edition, published by the Council of Biological Editors. In addition, the physical format of the thesis must be consistent with the **guidelines** set by the Graduate School.

Submission and Review of Thesis

The thesis is written as a collaboration between the student and the advisor. An important part of the education and experience involved in the M.S. in Biology is the production of a document explaining and describing the student's publishable, original research. Development of the thesis will be a lengthy process typically requiring multiple revisions prior to submission to the committee. The student is expected to submit drafts to their advisor according to an agreed-upon schedule. Once the thesis reaches an advanced stage, the other members of the student's committee become involved. Changes required or requested by the committee members will be made prior to approval of the thesis.

Once the committee conditionally approves the thesis, the student can then schedule a thesis defense. The candidate should expect to make reasonable changes based on faculty comments made before and during the comprehensive oral examination; inclusion of such changes will be up to the major professor and the student. The appropriately revised thesis is then submitted to the thesis clerk in the Graduate School. It is the student's responsibility to be certain of deadline dates, pay the required fees, and meet all other Graduate School rules. See the **calendar** posted on the Graduate School website.

Final Comprehensive Oral Exam

During the last semester and after writing a satisfactory thesis that has been approved by the thesis committee, M.S. in Biology candidates must take the comprehensive examination. Results from the thesis defense should be recorded using the appropriate form found in Appendix 5. This form needs to be completed and sent to the Graduate Program Coordinator.

Description of Exam

Each Master's student must present an *exit seminar* to the Biology Department (faculty and students). Typically, the seminar is presented during the hour immediately preceding the final oral exam. The duration of the seminar is approximately 45 minutes.

Approximately half of the examination evaluates knowledge in evolution and the two areas comprising the concentration (EEO or CMHD). The other half of the examination pertains directly to the research thesis.

Scheduling of Oral Exam

1. In consultation with their committee, the student arranges the date and works with the Graduate Program Coordinator to secure the location of the examination. The student *must* work with the Graduate Program Coordinator to submit the *Announcement of Oral Exam* form to the Graduate School at least 10 working days before the event (Appendix 1). *Failure to do this could result in a nullification of the defense and a rescheduling of the event!*
2. The examination may not be taken sooner than 1 week (5 working days) after submission of the committee-approved thesis to the Biology Department. *The candidate is responsible for adhering to the official deadlines of the Graduate School and the departmental calendar for that particular semester.*
3. All exams must be held when Baylor is officially in session. No exams may be scheduled on holidays or during interims between semesters. *This rule is strictly enforced by the Graduate School.*
4. All oral exams must be scheduled between 8:00 AM and 5:00 PM such that at least 2 hours are available for the exam (excluding the preceding seminar).
5. A thesis defense may not overlap times with another exit seminar, thesis, proposal or dissertation defense within the Biology department (If Defense A starts at 12:00pm, Defense B may not start after 9:00am or before 3:00pm).

Examination Committee

1. Attendance at the seminar presented prior to the oral examination is open to the public, but the oral exam following the seminar is limited to the student's graduate committee only.
2. If a member of the Examination Committee cannot be present, the other members of the Examination Committee (in consultation with the Graduate Program Director, if possible) shall appoint a replacement for the absent member.

Voting

1. All members of the Examination Committee shall vote on the proficiency of the candidate. Faculty members who participated in the exam, but who are not official members of the Examination Committee, are invited to discuss the candidate's performance, but are not eligible to vote.
2. Students must receive 2 passing votes out of 3 to pass the exam.
3. If a candidate fails the oral examination, the Examination Committee will discuss with the candidate the basis for the decision. The student may be granted an opportunity to retake the exam within 6 months. A second failure results in dismissal of the student from the program.

Please refer to the Timetable for the Master of Science in Biology near the end of this document and the corresponding graphical representation of the timetable (Appendix 3) for a succinct summary of the prescribed program of study and related deadlines

Program of Study: Master of Arts in Biology – Health Profession

The purpose of the M.A. in Biology - Health Profession (MA-HP) is to provide students with advanced education in the life sciences for students in which a non-thesis option is best for their career options. Students transitioning to a doctoral health-related graduate program are to benefit from this program that boosts their knowledge and skills related to medicine and human biology. This program is specifically designed for students who want to complete this degree within a year in anticipation of entering medical/dental schools the following year. **Thus, students admitted to the program must begin studies during the first summer session and complete their studies in time for graduation the following May.**

The student will take several advanced courses in this field, will conduct an independent research project, and will present a research seminar on a topic within this field of emphasis.

Candidates for the MA-HP are expected to have general knowledge of all major areas of biology. They are expected to demonstrate more-advanced knowledge in their field of emphasis. In addition, candidates are expected to be familiar with research methods in biology and be capable of reading and interpreting original research in their field of emphasis.

Assessment of Objectives

1. Students will be required to fill out annual reports each December. These reports will first be submitted to their research advisor for additional input before being submitted to the Graduate Program Director. These reports will be reviewed and returned, with or without recommendations as necessary.
2. MA-HP students sit for an *exit examination* toward the end of the final semester of studies. The exit exam begins with a 30-45 minute public presentation of the student's laboratory project. Following the presentation and questions from the audience, only members of the examination committee remain the room. Approximately half of the examination evaluates fundamental knowledge areas. The other half of the examination pertains directly to their research experience.

Coursework

1. A minimum of 30 semester hours of coursework.

These 30 hours must include:

- Research Methods in Biology I (BIO 5201; 2 hours)
 - Research Methods in Biology II (BIO 5202; 2 hours)
 - Statistics (e.g., STA 5300; 3 hours)
 - Special Problems in Biology (BIO 5V90; 6 hours)
2. Up to 4 hours of Seminars in Biology (BIO 5100) may be applied toward the 30 hours of coursework. Repeat credit requires change in topic from previous registrations.
 3. Additional hours of BIO 5V90 beyond the 6-hour requirement will not count toward the degree.
 4. At least 12 hours of this coursework must be at the 5000 level. *No more than 12 hours may be taken at the 4000 level, and 4000 level courses MUST be listed in the Baylor*

University Graduate Catalog (i.e., not all 4000 level courses are eligible for graduate credit).

5. No coursework at the 1000, 2000, or 3000 levels will count toward the MA-HP. Further, Baylor will not provide tuition remission for courses that do not count toward graduate credit. *The graduate student must pay for courses that are not graduate level and are not approved courses by your dissertation committee.*

Advisor and Exit Exam Committee

In consultation with the Graduate Program Director, the student should select an advisor no later than September 15th, but preferably in summer when they first arrive. The selected advisor should serve as the director of the student's independent research project (BIO 5V90) and exit seminar. Thus, students should approach faculty who are conducting research of interest to them prior to selecting an advisor. If desired, the student may engage with multiple faculty members and perform short rotations (1-week) before selecting an advisor. The advisor also will help the student select appropriate courses.

During the Fall or no later than early Spring, the student will select an advisory committee consisting of the advisor, at least one additional **Graduate Faculty** member from the Department of Biology, and one representative from Baylor graduate faculty outside the Department of Biology (known as the "Outside Reader"). The committee will administer the exit examination, which follows the student's research seminar near the end of the last semester.

Exit Seminar

Each MA-HP student must present a seminar to the Biology Department (faculty and students). The topic of the seminar must relate to a research project conducted under Special Problems (BIO 5V90) registration involving laboratory or literature research under the guidance of the student's advisor.

The seminar is presented prior to the exit examination. The seminar should be approved by the advisor, exit exam committee, and graduate school at least 10 working days prior to the event. Students should provide a 1-page synopsis or abstract of their research to the advisor and exit exam committee prior to the seminar. The seminar is a public event; students are encouraged to invite friends, family, and peers. The seminar is almost exclusively presented during the hour immediately preceding the exit exam. The duration of the seminar is usually 30-45 minutes, followed by questions from the audience, which may include questions from the exit exam committee. After the seminar and exam, the student is to fill out the Results of the Exit Seminar form (Appendix 5) and have it signed by their exit exam committee. Upon completion, the form is to be sent to the Graduate Program Coordinator.

Scheduling of Exit Seminar and Exam

1. In consultation with the MA-HP advisor and exit exam committee, the student arranges the date and works with the Graduate Program Coordinator to secure the location of the examination and submit the **Announcement of Oral Exam** form to the Graduate School at least 10 working days before the event.

2. The candidate is responsible for adhering to the official deadlines of the Graduate School and the departmental calendar for that particular semester. See the [calendar](#) posted on the Graduate School website:
3. All oral exams must be held on regular class days between the first and last days of class (inclusive) of the semester. **No exams may be scheduled on final exam days or on “study days” or during interims between semesters.**
4. All oral exams must be scheduled between 8:00 AM and 5:00 PM such that at least 2 hours are available for the exam (excluding the preceding seminar).
5. An exit seminar may not overlap times with another exit seminar, thesis, proposal or dissertation defense within the Biology department (If Defense A starts at 12:00pm, Defense B may not start after 9:00am or before 3:00pm).

Voting

1. All members of the Examination Committee shall vote on the proficiency of the candidate. Faculty members who participated in the exam, but who are not official members of the Examination Committee, are invited to discuss the candidate's performance, but are not eligible to vote.
2. A two-thirds affirmative vote is required for passing.
3. If a candidate fails the oral examination, the Examination Committee will discuss with the candidate the basis for the decision. The student may be granted an opportunity to retake the exam within 6 months. A second failure results in dismissal of the student from the program.

Please refer to the Timetable for the Master of Arts in Biology – Health Profession near the end of this document and the corresponding graphical representation of the timetable (Appendix 4) for a succinct summary of the prescribed program of study and related deadlines

General Regulations and Policies

1. Student attitude, appearance, and conduct are expected to be of the highest professional level. **Inappropriate behavior, including fraternizing with undergraduate students, failure to follow directions specified by Laboratory Coordinators, Instructors, your Advisor, or Departmental staff, tardiness, violating laboratory safety regulations (e.g., food or beverages in the lab, etc.), violations of the Honor Code, and disrespectful behavior to students, staff, or faculty, will be treated very seriously** by the Graduate Program Director and Department Chair. Depending upon the severity of the offense, the student will be **issued a formal reprimand and possibly be removed as a teaching or research assistant for one semester, including loss of funding. Repeat or egregious offenses will result in dismissal from the program.**
2. All courses taken by the student must be approved by the student's major professor. Suitability of courses for credit in the student's program depends on the level of the course (i.e., 4000-level vs. non-4000 level undergraduate courses, undergraduate vs. graduate level) and its relevance to the student's program. The Graduate Program Director, in consultation with the student's major professor, may decline to use tuition remission funds to pay for courses that are not so approved. Additionally, courses not related closely to the objectives of the Biology graduate program also may not be approved for credit toward the graduate degree.
3. When selecting courses for next semester or when adjusting your schedule for the current semester, be sure to consult with your faculty advisor. CMHD students in their first year should consult with the Graduate Program Director, and/or rotation advisors.
4. The graduate student is expected to maintain a minimum graduate GPA of 3.0 (B) throughout their program. Any student failing to maintain this average will be placed on probation; notification of such is by letter from the Graduate Dean. The graduate GPA must be restored to 3.0 during the next 9 hours of coursework in order to remain in the graduate program and regain non-probationary status. The student may not receive financial support (i.e., graduate assistantship or tuition scholarship) from the University while on probation.
5. Continuous full-time enrollment during a graduate career is required. At least one credit hour of full-time equivalent courses must be registered every session for a student to remain in the program. Failure to maintain continuous enrollment may result in the student being dismissed from the program or having to re-apply to the program through the Graduate School
6. All students should own a personal laptop computer. Several courses may require a personal laptop. Further, it is tremendously beneficial to the student as a professional to have access to computing off-campus. In addition, the Biology Department supports graduate-student computer needs by equipping most faculty research labs with computers. Graduate students are generally granted access to computers in the labs of their major professor.

7. The Biology Office (BSB B.207) is open and available to graduate students from 8:00 AM until 5:00 PM on business days. Access to the Biology Office is not authorized at other times.
8. Graduate students can conduct limited photocopying on the machine in the Biology Office. These privileges pertain primarily to copying associated with graduate assistantship duties. Where possible, use the library sponsored Osofast or email to request research articles. Reprint cards are available free from the Biology Office and the department will pay the postage for these.
9. Several vehicles are operated by the Biology Department to serve teaching and research needs and other purposes of official business. These may be checked out through the departmental office, after proper registration and passing of an online driving test with the department and university (forms available in Biology Office). Posted rules for vehicle use are to be followed by all drivers.
10. Use of departmental letterhead is restricted to purposes of official university business, such as corresponding with researchers at other institutions, applying for grant support, applying for admission into other academic programs, etc. No one is authorized to use departmental letterhead for making political statements or statements of position; these could be misconstrued as University policy. No student is authorized to use departmental letterhead to request complimentary copies of textbooks; professors may assist in obtaining these.
11. Use of postage, like other departmental resources, is restricted to official University business. The advisor is always a good source of advice and information on this and many other matters.
12. Each graduate student will have an official electronic mail account. This has become the predominant means of official communication between Department administration and graduate students. **You will need to check your e-mail account several times daily.**
13. **All graduate students are expected to attend regularly scheduled departmental seminars.** No matter what the topic or how well the seminar is presented, you will surely learn something of value by participating. Please review the attendance policies for each program.

Financial Support

1. Award of stipend support after the first year in the program will be contingent on quality of work performance and on progress made toward the chosen degree. ***Funding for doctoral students is generally available for up to, but no longer than, 6 years. Funding within year 6 is contingent upon evidence of sufficient progress towards degree. Funding beyond year 6 is not available from internal sources.*** Funding beyond year 6 may come from a student's advisor via extramural funding or their advisor's own internal funding.

Funding for M.S. students is restricted to research assistantships from extramural funding (i.e., grants and contracts) and only guaranteed for the amount of time specified in the acceptance letter, if any at all.

2. Generally, a maximum of 20 semester hours of tuition scholarship will be allowed per 12-month academic year (Summer through Spring semesters). Award of tuition scholarships after the first year in the program will be contingent on progress made toward the chosen degree.

Regarding the Number of Credit hours for Enrollment

Several overlapping but distinct policies impact students that enroll for less than full-time (9 hours of course work) or full-time equivalent (1 hour of 5V99, 6V10, or 6V99) during the fall and spring semesters.

The policies below are in regard to the graduate school. Additional considerations such as financial aid eligibility or tax status as a dependent may also be affected by enrolling less than full-time.

These policies are mostly relevant to students who transfer significant numbers of graduate credit hours and therefore, may wish to enroll in less than 9 credit hours at certain points during their graduate career.

1. All semesters (fall, spring, summer) require 9 hours to be “full-time” unless 1 hour of a full-time equivalent (FTE) course is taken. FTE courses in Biology are 5V99, 6V10, and 6V99.
2. All students registered for at least 3 hours or 1 FTE must show proof of insurance or enroll in Baylor’s insurance program.
3. All students registered for at least 3 hours and who are also fully funded on an assistantship are eligible to receive the 80% insurance subsidy.
4. International students must be enrolled on a full-time basis throughout their time in graduate school, *except* for summer terms, *as long as* full-time is achieved the previous spring and subsequent fall.
5. Registration for at least 5 hours or 1 FTE is required to be exempt from FICA taxes, see policy [here](#).

NOTE: During the summer, it is not necessarily recommended that students register for 5 hours to be “half-time”, especially for financial reasons. The cost burden in course fees may exceed the cost of FICA taxes. Also, less than full-time summer registration is only likely to occur for PhD students during the first summer. Subsequent summers should include either 6V10 or 6V99 registration which are FTE courses.

Assignment of Graduate Student Teaching Duties

The intent of assignment of graduate student teaching duties is to provide a strong educational experience for undergraduate students in the supported courses, as well as to provide on-the-job education (in both content and pedagogy) for the teaching assistants. Undergraduate courses with large enrollments generally receive highest priority in staffing with graduate assistants. When possible, graduate assistants will be assigned to courses in which they have prior academic education. Preferences of faculty and graduate students for particular students and courses will be honored when it is feasible.

Responsibilities of Teaching Assistants

1. In accepting the appointment as a teaching assistant in the Biology Department, the student becomes an integral part of the department's instructional personnel. As such, they are obligated to support the standards and policies of the Department and the University. Student attitude, appearance, and conduct are expected to be of the highest professional level. ***Inappropriate behavior, including fraternizing with students, failure to follow directions specified by the Laboratory Coordinator or Instructor, tardiness, violating laboratory safety regulations (e.g., food or beverages in the lab, etc.), and disrespectful behavior to students, staff, or faculty, will be treated very seriously by the Graduate Program Director and Department Chair. Depending upon the severity of the offense, the student will be issued a formal reprimand or be removed from as teaching assistant for one semester. Repeat or egregious offenses will result in dismissal from the program.***
2. Approximately 15 clock-hours of work per week are required for the full assistantship. This may include required lecture attendance, prep sessions, and grading. If a teaching assignment does not require 15 hours, the graduate assistant will devote the remaining hours to support of their major professor's research program.
3. The responsibilities of the graduate assistant may include but are not limited to:
 - a. Assuming the responsibility, under the direction of the responsible faculty member, for the highest quality laboratory experience for the student.
 - b. Supervising of undergraduate assistants.
 - c. Meeting weekly planning and education sessions with the responsible faculty member and undergraduate assistants.
 - d. Assuming responsibility for having all necessary equipment and supplies in place prior to the laboratory period and for cleaning the laboratory and equipment and returning these materials to storage when the laboratory is concluded.
 - e. Maintaining records of student attendance and equipment breakage and submitting these to the responsible faculty member and assuming responsibility for maintaining animal-bite or other injury records and informing the appropriate faculty member.
 - f. Assisting in preparation, administration, and grading of tests.

- g. Attending course lectures and assisting in roll-taking as well as providing instruction through recitation sections.
- h. Exhibiting an interest in the academic progress of their students by reporting low grades, lack of interest, etc., to the responsible faculty member.
- i. Aiding in other general academic duties such as administration of departmental examinations, etc.

Timetable for Doctor of Philosophy in Biology

Summer 0 (following acceptance and prior to Fall I enrollment):

- Register for courses prior to June 30th (incoming students). *Late fees will be applied after July 31st*. Incoming students typically enroll in the following courses:
 - BIO 5100 Topics in Biology (1 credit each)
 - BIO 5201 Research Methods in Biology I (2 credits)
 - STA 5300 Statistical Methods or comparable course (3 credits)
 - BIO 4000/5000 elective (if needed/applicable; 3-4 credits)
 - *BIO 6101 Research Rotations (3 sections, 1 credit each, see next)

**CMHD students only.* Communicate individually with faculty members to learn about possible rotation research projects and obtain permission to rotate in their lab. If agreed, each incoming student should then email the Graduate Program Director, Graduate Program Coordinator, and Rotation Advisor at least three weeks prior to the beginning of the Fall semester. Students should enroll in three different sections of BIO 6101, each corresponding to a different rotation advisor's section number.
- Arrive on campus 1 week prior to the start of Fall I courses:
 - Attend meeting with lab coordinators for TA assignments, if applicable. Lab coordinators will work around your course schedule to assign lab sections.
 - Students on research assistantships (RA) should meet with their RA advisor during this week to plan a schedule for 20 h/week of work for the semester
 - Attend Graduate School Orientation, typically mid-week. Details will be provided to you directly from the Graduate School. Required.
 - Attend New Biology Graduate Student Information Session. Snacks or lunch will be provided. Required.

Fall I (1st semester)

- Coursework, see above
- CMHD students will be actively engaged in Research Rotations, whereas EEO students should be integrating into their advisor's research lab and meeting with their advisor regularly to shape their program of study.
- Teaching Assistantship (15 h/week) or Research Assistantship (20 h/week)
- Attendance and participation in Biology Seminar Series via BIO 5101 (weekly).
- Register for Spring I courses prior to the announced deadline or risk facing late fees and possible retraction of tuition remission from the Biology department. Courses typically completed in Spring I:
 - BIO 5100 Topics in Biology (1 credit each)
 - BIO 5202 Research Methods in Biology II (2 credits)

- BIO 5000 elective (3-6 credits, up to 2 courses)
- STA 5300 (if not taken in Fall I, 3 credits)
- CMHD students only: student-advisor matching will occur at the end of the 3rd rotation, no later than the beginning of Spring I. Email the Graduate Program Coordinator your preferences for matching no later than the day of the final research presentation.

Spring I (2nd semester)

- Coursework
- TA/RA (15-20 h/week)
- Attendance at weekly Biology Department Seminar Series via BIO 5101
- Make significant progress on readings, methods, and hypotheses that will form the basis of your PhD dissertation proposal.
- Complete the [advisor/advisee agreement](#) and sign it for submission to the Graduate School.
- Begin to identify faculty members for your Preliminary Exam committee. Consider forming your Preliminary Examination committee during this semester, but no later than 4 weeks prior to the end of Summer I. Ask your advisor to submit names of the PhD Examination committee to the Graduate Program Director for formal approval.
- **Register for Summer I and Fall II courses** prior to the announced deadline or risk facing late fees and possible retraction of tuition remission from the Biology department.
- Courses typically completed in Summer I
 - BIO 5101 Graduate Scientific Communications (1 credit)
 - BIO 5V90, Special Problems, typically with your PhD advisor; 1-4 credits
- Courses typically completed in Fall II
 - BIO or related 5000 (electives), (6-10 hours, 3-4 courses), 6-10 hours
 - BIO 5100 Topics in Biology (1 credit each)

Summer I

- Coursework (5V90 & BIO 5101 Graduate Scientific Communications)
- TA one of two summer sessions (if on a TA); RA full summer (if on an RA).
- Begin drafting an outline of your PhD dissertation proposal.
- **Formalize your Preliminary Examination committee no later than 4 weeks prior to the end of Summer I. Ask your advisor to submit names of the Preliminary Examination committee to the Graduate Program Director for formal approval. *Failure to do this may result in probation and possible dismissal from the program.***

Fall II (3rd semester)

- Coursework (see above)
- TA/RA (15-20 h/wk)
- Attendance and participation in Biology Seminar Series (weekly).
- Register for Spring II courses prior to the announced deadline or risk facing late fees and possible retraction of tuition remission from the Biology department. At this point your courses will be entirely electives and should be driven by critical gaps in your knowledge as it relates to your dissertation topic. *You should be interacting with your advisor and Preliminary Exam committee for guidance on relevant courses, as you should be wrapping up coursework during Spring II.*
- Schedule your First Committee Meeting, which will include each the four Preliminary Examination committee members who will be responsible for writing questions for your PhD written preliminary exam in Spring II as well as the Outside Reader. Begin to seek guidance from them about your dissertation proposal as well as specific areas on which they will test you during the written exam.
- **Students who are preparing for the written preliminary exam may enroll in BIO 6V10, Dissertation Prospectus Research for Spring II, though additional course work may be warranted. BIO 6V10 is full-time equivalent (1 credit=full time).**

Spring II (4th semester)

- Coursework
 - BIO 5349 Proposal Development (3 credits)
 - Electives
 - BIO 6V10 Dissertation Prospectus Research (if coursework requirements are completed, 1 hour full-time equivalent)
- TA/RA (15-20 h/wk)
- Attendance and participation in Biology Seminar Series (weekly).
- Continue to meet with Preliminary Examination committee members to seek guidance in the development of your PhD dissertation proposal and material you must know in order to pass their components of the preliminary written exam.
- **Preliminary Examination committee members must submit questions to the student's PhD advisor at least 4 weeks prior to the PhD written preliminary exam. The student is responsible for reminding their committee members and advisor to ensure this is completed on time.**

- The student's PhD advisor must collate and submit questions for approval to the Graduate Program Director and Graduate Program Coordinator at least 2 weeks prior to the PhD written preliminary exam.
- Student must take the PhD written preliminary exam during this semester. The exam is typically held in mid- to late-Spring.

Register for Summer II and Fall III courses prior to the announced deadline or risk facing late fees and possible retraction of tuition remission from the Biology department. At this point both of these semesters should be used to take BIO 6V10 and finishing up any coursework electives.

Summer II

- BIO 6V10 Dissertation Prospectus Research & BIO 5101 Graduate Scientific Communications (1 credit)
- No TA responsibility if TA occurred in 1st Summer
- Students should be making significant progress on the PhD dissertation proposal, which must be defended by the end of Fall III (5th semester).
- Consult with the Preliminary Examination Committee (n=5 members) to schedule the PhD proposal defense at least 2 months in advance.

Fall III (5th semester)

- BIO 6V10 Dissertation Prospectus Research (1 credit)
- TA/RA (15-20 h/wk)
- Attendance and participation in Biology Seminar Series (weekly).
- Submit a final draft copy of the PhD dissertation proposal to the Preliminary Examination committee no less than 2 weeks prior to the defense.
- Submit an announcement of the date, time, location, and title of the dissertation proposal to the Graduate Program Coordinator for distribution to the faculty and students no less than 2 weeks prior to the defense.
- Present and defend the proposed dissertation research to the Preliminary Examination committee no later than the last day of classes (excluding reading days and finals).
- Upon successful defense of the proposal defense, student must have each committee member sign *Result of Proposal Defense* form from Appendix 5. This form should also be signed by the Graduate Program Director and submitted the Graduate Program Coordinator who will file with the Graduate School prior to the beginning of Spring III (6th semester). Students are not eligible to enroll in BIO 6V99 until admission to doctoral candidacy has been approved.

Spring III (6th semester)

- BIO 6V99 Dissertation (9-12 hours; forecast the number of hours you will need to achieve a minimum of 12 hours 6V99 and a total of 78 semester hours (40 of which must be made up of all coursework). Student should be focused completely on completing proposed research from this point forward in their program of study.
- TA/RA (15-20 h/wk)
- Attendance and participation in Biology Seminar Series (weekly).
- Meet with PhD Dissertation committee (formerly your Preliminary Exam committee, although some changes in the committee composition may be necessary) to discuss progress on your research (once per semester, even if you need to meet with some members individually).

Summer III

- BIO 6V99 Dissertation (1-12 hours)
- No TA responsibility if TA occurred in 1st or 2nd Summer
- Student should be making significant progress on their PhD dissertation research with a goal of Spring V (10th semester) graduation.

Fall IV (7th semester)

- BIO 6V99 Dissertation (1-12 hours)
- TA/RA (15-20 h/wk)
- Attendance and participation in Biology Seminar Series (weekly).
- Meet with PhD Dissertation committee to discuss progress on your research (once per year, even if you need to meet with some members individually).
- Student should have at least one paper submitted for publication at this point in their program of study.

Spring IV (8th semester)

- BIO 6V99 Dissertation (1-12 hours)
- Schedule your Mid-Candidacy Committee meeting.
- TA/RA (15-20 h/wk)
- Attendance and participation in Biology Seminar Series (weekly).

Summer IV

- BIO 6V99 Dissertation (1-12 hours)
- Student should be making significant progress on their PhD dissertation research with a goal of Spring V (10th semester) graduation.

Fall V (9th semester)

- BIO 6V99 Dissertation (1-12 hours)
- TA/RA (15-20 h/wk)
- Attendance and participation in Biology Seminar Series (weekly).
- Student should be making significant progress on their PhD dissertation research with a goal of Spring V (10th semester) graduation.

Spring V (10th semester)

- BIO 6V99 Dissertation (1-12 hours)
- TA/RA (15-20 h/wk)
- Upon confirmation of acceptance of at least 1 publication, and upon completion of a rough draft of the PhD dissertation, consult with PhD advisor and committee (n=5 members) to schedule the PhD dissertation defense (final exam) at least 2 months in advance.
- Submit a final draft copy of the PhD dissertation the PhD committee no less than 2 weeks prior to the defense.
- Submit the defense date, time, location, title, and abstract to the Graduate Program Coordinator for distribution to the faculty and students no less than 2 weeks prior to the defense. This information is also used to fill out Dissertation Announcement paperwork which the Graduate Program Coordinator must submit to the Graduate School no less than 10 days prior to the defense.
- Present and defend the dissertation research to the PhD committee no later than the last day of classes (excluding reading days and finals).
- Upon successful defense of the dissertation, the student must have each committee member sign the corresponding form found in Appendix 5. This form should be signed by the Graduate Program Director and submitted to the Graduate Program Coordinator as soon as possible.
- For Spring graduation, the defense typically must be completed by mid-March in order to allow sufficient time for revisions to the dissertation and formatting by the Graduate School.

Students who defend after the spring graduation deadline but before the end of the semester will officially graduate during the Summer commencement.

- For Spring graduation, students are also responsible for being aware of the deadlines set by the Graduate School for filing for Graduation. If a student fails to file for graduation before the deadline, they will have to file for the Summer.
- See **Appendix I** for additional forms related to dissertation formatting and final approval.

Timetable for Master of Science in Biology

Summer 0 (following acceptance and prior to Fall I enrollment):

- Register for courses prior to June 30th (incoming students) so that your tuition remission can be applied to your account, if applicable. *Late fees will be applied after July 31st*. Incoming students typically enroll in the following courses:
 - BIO 5201 Research Methods in Biology I (2 credits)
 - BIO 5100 Seminar (1 credit each)
 - BIO 5101 Graduate Scientific Communications (1 credit)
 - STA 5300 Statistical Methods (3 credits; or comparable course)
 - BIO 4000/5000 elective (if needed/applicable; 3-4 credits)
- Arrive on campus 1 week prior to the start of Fall I courses:
 - Attend Graduate School Orientation, typically mid-week. Details will be provided to you directly from the Graduate School. Required.
 - Attend New Biology Graduate Student Information Session. Snacks or lunch will be provided. Required.
 - Students on research assistantships (RA) should meet with their RA advisor during this week to plan a schedule for 20 h/week of work for the semester

Fall I (1st semester)

- Coursework (minimum 9 hours), see above
- Attendance and participation in Biology Seminar Series (weekly).
- Register for Spring I courses prior to the announced deadline or risk facing late fees and possible retraction of tuition remission (if applicable) from the Biology department. Courses typically completed in Spring I:
 - BIO 5202 Research Methods in Biology II (2 credits)
 - BIO 5100 Seminar (1 credit each)
 - BIO 5101 Graduate Scientific Communications (1 credit)
 - BIO 5000 elective (3-4 credits, up to 2 courses)
 - STA 5300 (if not taken in Fall I, 3 credits)
- Student should be actively participating in their advisor's laboratory throughout the semester. Student should identify a thesis topic and make significant progress on readings, methods, and hypotheses that will form the basis of the thesis proposal.
- Student should begin to identify faculty members who would make strong contributions to your thesis committee.

Spring I (2nd semester)

- Coursework (minimum 9 hours, typically all electives)

- Attendance at weekly Biology Department Seminar Series (weekly).
- Students must complete and defend their thesis proposal before the last day of classes, excluding final exam days. Failure to comply will result in probation (loss of funding). Further, if the student fails to complete and defend the proposal by the end of Summer I, the student may be dismissed from the program.
- Register for Summer I and Fall II courses prior to the announced deadline or risk facing late fees and possible retraction of tuition remission from the Biology department.
- Courses typically completed in Summer I
 - BIO 5V90, Special Problems, typically with your PhD advisor; 1-6 credits
- Courses typically completed in Fall II
 - BIO or related 5000 (electives), (9-10 hours, 3-4 courses)

Summer I

- Coursework (5V90, 1-6 hours)
- Student should be making significant progress on data collection in support of their thesis, which should have been defended and approved by now.

Fall II (3rd semester)

- Coursework (minimum 9 hours)
- Attendance and participation in Biology Seminar Series (weekly).
- Register for Spring II courses prior to the announced deadline or risk facing late fees and possible retraction of tuition remission from the Biology department. At this point your courses either will be entirely electives or BIO 5V99 (minimum 6 credits to graduate).

Spring II (4th semester)

- Coursework (minimum 9 hours)
- Attendance and participation in Biology Seminar Series (weekly).
- Upon completion of a rough draft of the thesis, consult with thesis committee (n=3 members) to schedule the M.S. thesis defense (final exam) at least 2 months in advance.
- Submit a final draft copy (approved by your advisor) of the M.S. thesis to your committee no less than 2 weeks prior to the defense.
- Submit the date, time, location, and title of your thesis defense to the Graduate Program Coordinator for distribution to the faculty and students no less than 2 weeks prior to the

defense. This information will also be used by the Graduate Program Coordinator to fill out a form that must be submitted to the Graduate School no less than 10 days prior to the defense.

- Present and defend the thesis research to the M.S thesis committee no later than the last day of classes (excluding reading days and finals). For Spring graduation, the defense typically must be completed by mid-March to allow sufficient time for revisions to the thesis and formatting by the Graduate School. Students who defend after the spring graduation deadline but before the end of the semester will officially graduate during the Summer commencement.
- For Spring graduation, students are also responsible for being aware of the deadlines set by the Graduate School for filing for Graduation. If a student fails to file for graduation before the deadline, they will have to file for the Summer.
- Upon successful defense of the thesis, the student must have each committee member sign the appropriate form from Appendix 5. This form should be signed by the Graduate Program Director and submitted to the Graduate Program Coordinator as soon as possible.

Timetable for Master of Arts in Biology – Health Profession

Spring 0 (following acceptance and prior to summer enrollment):

- Identify an advisor (see CMHD faculty). This individual will serve as your mentor for BIO 5V90 and help you choose appropriate courses. Contact Myeongwoo_Lee@baylor.edu the MA-HP coordinator, for assistance.
- Register for courses prior to May 15th (incoming students) so that your tuition remission can be applied to your account, if applicable. Incoming students typically enroll in 3-6 credits of 5V90, but other summer courses may be relevant. Please consult with your advisor.

Summer I

- Arrive on campus for the first day of classes. Meet with your advisor and go over your plan for the summer.

Participate in laboratory research in your mentor's lab. This work will form the basis of your exit seminar the following Spring.

- Register for Fall I courses prior to June 30th so that your tuition remission can be applied to your account, if applicable. Most MA-HP students take the following courses, but please consult with your advisor.
 - BIO 5201 Research Methods in Biology I (2 credits)
 - BIO 5100 Seminar (1 credit each)
 - STA 5300 Statistical Methods (3 credits, or comparable course)
 - BIO 5V90 Special Problems in Biology (0-3 credits)
 - BIO 4000/5000 elective (4-7 credits, up to 2 courses)
- Arrive on campus 1 week prior to the start of Fall I courses:
 - Attend Graduate School Orientation, typically mid-week. Details will be provided to you directly from the Graduate School. Required.
 - Attend New Biology Graduate Student Information Session. Snacks or lunch will be provided. Required.

Fall I (1st semester)

- Coursework (minimum 9 hours), see above
- Attendance and participation in Biology Seminar Series (weekly).
- Register for Spring I courses prior to the announced deadline or risk facing late fees and possible retraction of tuition remission (if applicable) from the Biology department. Courses typically completed in Spring I:
 - BIO 5202 Research Methods in Biology II (2 credits)
 - BIO 5V90 Special Problems in Biology (0-3 credits)
 - BIO 5100 Seminar (1 credit)
 - BIO 5000 elective (7-10 credits, up to 3 courses)
 -
- Student should be actively participating in their advisor's laboratory throughout the semester.

Spring I (2nd semester)

- Coursework (minimum 9 hours)
- Attendance at weekly Biology Department Seminar Series
- Students must complete and defend their exit exam before the deadline for Spring graduation. Failure to comply may result in dismissal from the program. This is a 1-year (365 days) program, so students are expected to complete their 30-hour degree in 1 year.

Biology Graduate Faculty

MARIA BOTTAZZI (CMHD) PhD, University of Florida <i>Vaccine Development, Tropical Disease Biology</i>	MYEONGWOO LEE (CMHD) PhD, Illinois State University <i>Developmental Genetics of <u>C. elegans</u></i>
TAMAR E. CARTER (CMHD/EEO) PhD, University of Florida <i>Genetics and Genomics of Tropical Diseases and Their Hosts</i>	KATELYN MCKINDLES (CMHD/EEO) PhD, Bowling Green State University <i>Aquatic Microbial Ecology</i>
ROBERT D. DOYLE (EEO) PhD, University of Maryland <i>Wetland Ecology, Aquatic Plants</i>	R. JASON PITTS (CMHD) PhD, Vanderbilt University <i>Sensory Biology of Disease Vector Insects</i>
MARIANA GIASSETTI (CMHD) PhD, University of Sao Paulo, Brazil and from University of Zaragoza, Spain <i>Male Fertility and Mammalian Reproductive Health</i>	STEPHEN M. POWERS (EEO) PhD, University of Wisconsin <i>Global Change Biology, Freshwater Ecosystems</i>
PETER J. HOTEZ (CMHD) PhD, The Rockefeller University <i>Drug and Vaccine Development, Tropical Disease Biology</i>	J. THAD SCOTT (EEO) PhD, Baylor University <i>Limnology, Aquatic Biogeochemistry</i>
CHRISTOPHER M. KEARNEY (CMHD) PhD, Cornell University <i>Molecular Genetics, Biotechnology, Bioinformatics</i>	CHEOLHO SIM (CMHD) PhD, University of Notre Dame <i>Disease-Vector Biology</i>
BESSIE W. KEBARA (CMHD) PhD, University of Nebraska <i>Microbiology, Gene Expression</i>	DWAYNE D. SIMMONS (CMHD) PhD, Harvard University <i>Neurobiology and Cell Signaling</i>
JONATHAN KELBER (CMHD) PhD, University of California San Diego <i>Cancer Progression and Tissue Homeostasis</i>	JOSEPH H. TAUBE (CMHD) PhD, University of Texas Health Sciences Center <i>Cancer Biology, Epigenetics</i>
SARAH S. KIENLE (EEO) PhD, University of California-Santa Cruz <i>Marine Mammal Ecology, Behavior, and Conservation</i>	AARON WRIGHT (CMHD) PhD, The University of Texas Biomedical Sciences and Microbiology <i>Microbiology, Enzymes, Chemical Probes</i>

Appendix 1: Table of Forms for the M.S., M.A.HP., and Ph.D. Degrees

Further details on Graduate School forms are available here:

<https://www.baylor.edu/graduate/index.php?id=980858>

For questions about the below forms, please contact Alanna Martinez.

Alanna_Martinez@baylor.edu

(254)710-4610

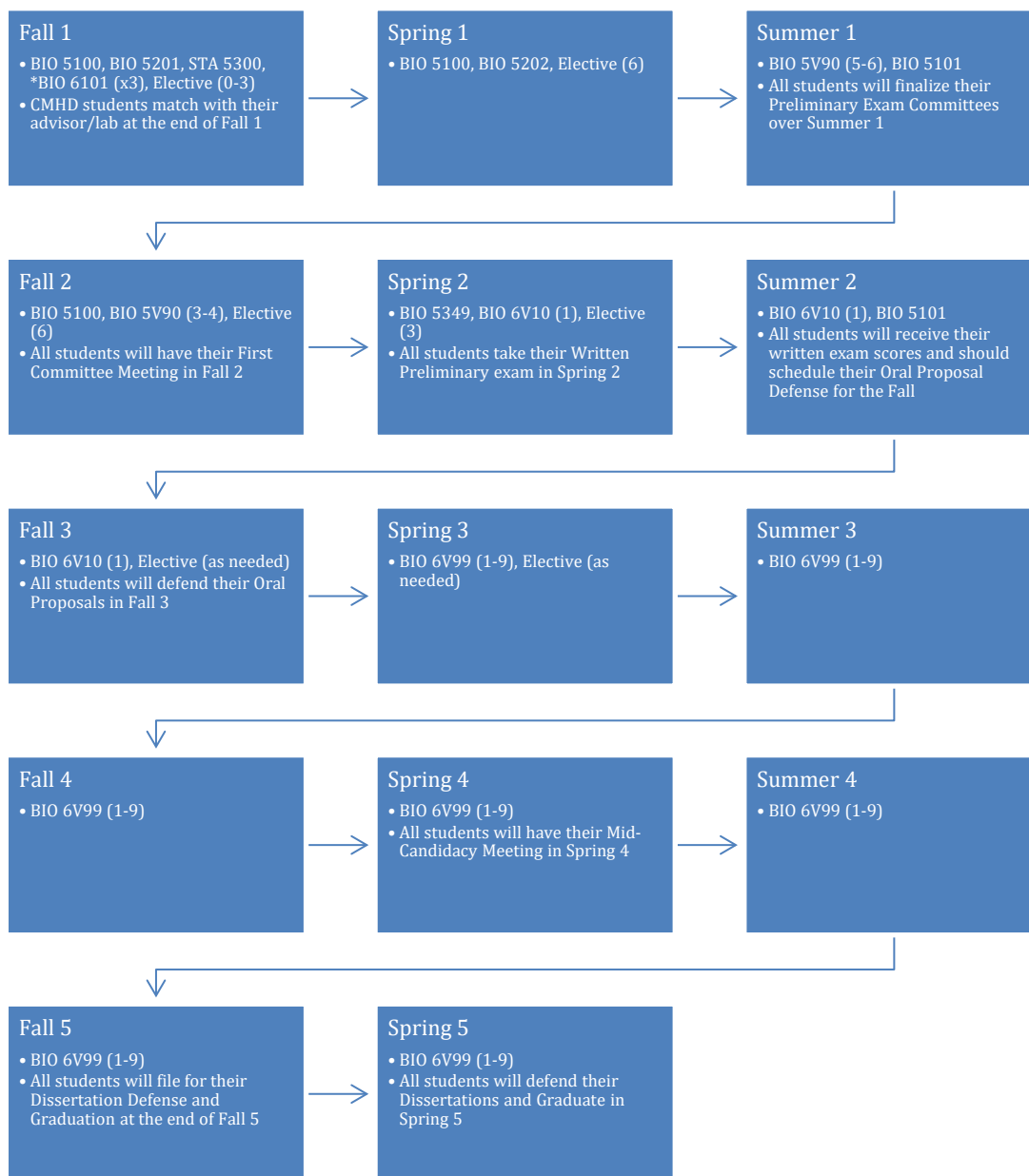
Forms to be filled out by Graduate Student	Reason for Use
Approval of Final Dissertation/Thesis	Required to submit the fully approved version of one research project.
Copyright and Availability	Required to submit the official copy of your dissertation.
Doctoral Investment Form	Required to prepare for conferral of degree.
Signature Page	Required to finalize Thesis or Dissertation.

Forms to be filed out by Biology Faculty/Staff	Reasons for Use
Graduate School Petition	Required for transferring graduate degree credits, course substitutions, time-limit extensions, and changes to catalog terms.
Results of Comprehensive Exam	Completed after a student, normally a master's level student that is not completing a Thesis, has successfully passed a comprehensive exam. This form is submitted to the Graduate Program Director and Graduate Program Coordinator. Then, when a full pass is recorded, the Graduate Program Coordinator will submit this form to the Graduate School.
Results of Preliminary Exam	Following the dissertation proposal defense, the form in Appendix 5 should be submitted to the Graduate Program Director and Graduate Program Coordinator. Then, when a full pass is recorded, the Graduate Program Coordinator will submit this form to the Graduate School.
Admission to Doctoral Candidacy	Following a successful dissertation proposal defense, the student should submit to the Graduate Program Director and Graduate program Coordinator evidence that all course requirements are complete. At this time, the Graduate Program Coordinator will submit this form to the Graduate School and the student will be admitted to doctoral candidacy.
Announcement of Oral Dissertation/Thesis Defense	Required two weeks before oral dissertation/thesis defenses. Students will

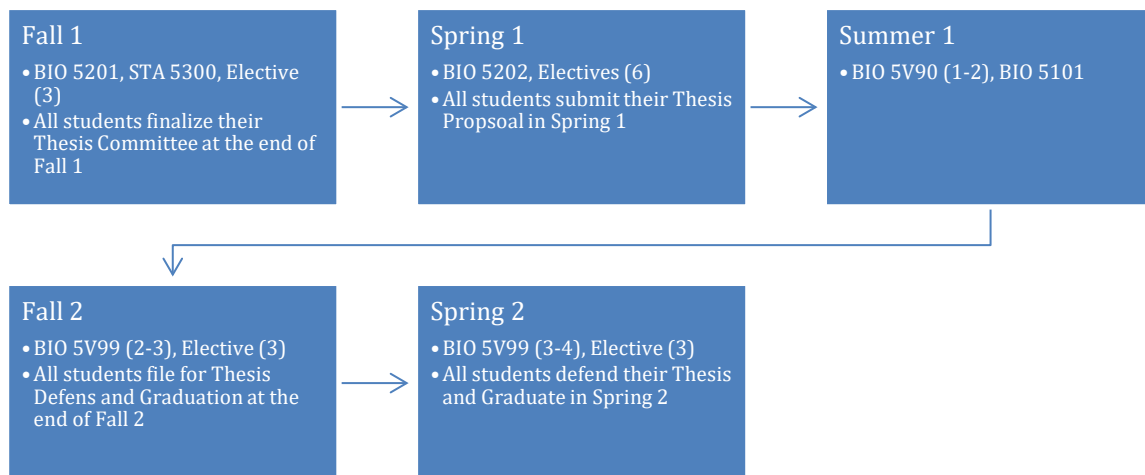
	provide the Graduate Program Coordinator with date/time of defense, defense title, committee names, and any other necessary information requested. At this time, the Graduate Program Coordinator will submit this form to the Graduate School.
Result of Oral Exam	Following the dissertation defense, the form in Appendix 5 should be submitted to the Graduate Program Director and Graduate Program Coordinator. Then, when a full pass is recorded, the Graduate Program Coordinator will submit this form to the Graduate School.

Appendix 2: Timetable for the Doctor of Philosophy in Biology, Graphical Representation

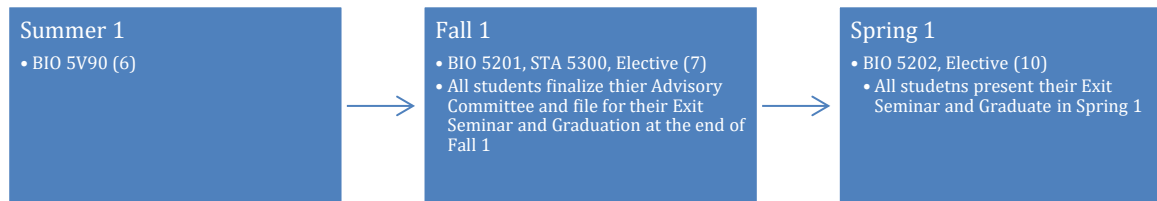
* CMHD Students only



Appendix 3: Timetable for the Master of Science in Biology, Graphical Representation



Appendix 4: Timetable for the Master of Arts – Health Professions in Biology, Graphical Representation



Appendix 5: Biology Department Forms for Program Progression

Results of the Proposal Defense

Student Name: _____ Date: _____

Rate the following areas on a scale of 1 to 5, with 5 being the highest rating and 1 being the lowest. Make any specific comments in the spaces to the right. **Note:** a score of 3 is usual and respectable and corresponds to an "average" rating. Please use scores of 4 or 5 only for unusually good and exceptional performances, respectively, and leave comments that support such scores.

Note: All of the ratings below are necessary. These ratings are used for student feedback as well as program assessment purposes.

	Relative Rating					Comments
	High			Low		
	5	4	3	2	1	
Impact on Field of Study						
Rigor of Scientific Approach						
Oral Presentation						
Proposal Quality						

Overall Score: _____

Faculty Name: _____

Faculty Signature: _____ Date: _____

Committee Position (Chair, Internal Member, Outside Member): _____

Results of the Mid-Candidacy Meeting

Name _____ Date _____

Permission to Defend Granted – Unconditional Permission

to Defend Granted – With Conditions

Permission to Defend Not Granted at this Time

If permission to defend is granted with conditions, detail the conditions below. If publications are in the conditions, include the number and publication status required (e.g. in press vs accepted vs under review).

Chair: _____

Member: _____

Member: _____

Member: _____

Member: _____

Printed Name

Signature

Results of the Thesis or Dissertation Defense

Student Name: _____ Date: _____

Rate the following areas on a scale of 1 to 5, with 5 being the highest rating and 1 being the lowest. Make any specific comments in the spaces to the right. **Note:** a score of 3 is usual and respectable and corresponds to an "average" rating. Please use scores of 4 or 5 only for unusually good and exceptional performances, respectively, and leave comments that support such scores.

Note: All of the ratings below are necessary. These ratings are used for student feedback as well as program assessment purposes.

	Relative Rating					Comments
	High			Low		
	5	4	3	2	1	
Impact on Field of Study						
Rigor of Scientific Approach						
Oral Presentation						
Dissertation Quality						

Overall Score: _____

Faculty Name: _____

Faculty Signature: _____ Date: _____

Committee Position (Chair, Internal Member, Outside Member): _____

Results of the Exit Seminar

Student Name: _____ Date: _____

Rate the following areas on a scale of 1 to 5, with 5 being the highest rating and 1 being the lowest. Make any specific comments in the spaces to the right. **Note:** a score of 3 is usual and respectable and corresponds to an "average" rating. Please use scores of 4 or 5 only for unusually good and exceptional performances, respectively, and leave comments that support such scores.

Note: All of the ratings below are necessary. These ratings are used for student feedback as well as program assessment purposes.

	Relative Rating					Comments
	High				Low	
	5	4	3	2	1	
Impact on Field of Study						
Rigor of Scientific Approach						
Oral Presentation						
Presentation Quality						

Overall Score: _____

Faculty Name: _____

Faculty Signature: _____

Date: _____

Committee Position (Chair, Internal Member, Outside Member): _____

Appendix 6: Biology Department Forms for Non-Departmental On-Campus Employment
On-Campus Employment Request Form

Intended hours worked per week outside of Department of Biology: _____

Intended length of employment outside of Department of Biology: _____ - _____

Intended time of day worked: _____

Description of duties:

How will pursuing this additional work impact your courses and research progress?

Advisor's comments:

Student Sign: _____

Advisor Sign: _____

Graduate Program Director Sign: _____