GRADUATE HANDBOOK
DEPARTMENT OF BIOLOGY
COLLEGE OF WILLIAM & MARY
Version 2025–26

Guidelines and Requirements for the M.S. and M.A. Degrees in Biology

I. INTRODUCTION

The goals of the Biology graduate program are to:

1. Generate a productive, inclusive academic community of students dedicated to performing high-quality, publishable research within a two-year program.
2. Produce graduates with both specialized training in their chosen sub-disciplines as well as communication skills to effectively function within a broad-based scientific community.
3. Equip students with a range of research and teaching proficiencies that will significantly enhance their scientific or professional career opportunities.
4. Foster close academic interactions between faculty and graduate students.

II. TYPES OF GRADUATE PROGRAMS

Students may obtain a graduate degree in Biology by completing either an M.S. thesis research program or, under special circumstances and with the consent of the Biology Graduate Committee and the Arts & Sciences (A&S) Dean of Graduate Studies and Research, an M.A. non-thesis program. Many of the requirements listed in this handbook also appear in the Graduate Arts & Sciences Catalog. Incoming students should familiarize themselves thoroughly with all applicable regulations and begin planning their programs accordingly. Any questions concerning the interpretation of a specific requirement should be addressed to the Director of Graduate Studies in the Biology Department. The Director of Graduate Studies and the Biology Graduate Committee will assist in any way possible, but the final responsibility for meeting all requirements rests solely with the student.

a) M.S. Thesis Research Program

Credit requirements: An M.S. degree requires 30 credit hours of courses: 24 credits numbered at the 500 and 600 levels (at least 12 at the 600 level), plus 6 credits of BIOL 700 Thesis. For graduate Teaching Assistantship (TA) or Research Assistantship (RA) support, students must be full-time and enrolled in 9–12 credits per semester. A cumulative grade point average of 3.0 or better on a 4.0-point scale must be earned for all degree-counting courses, with no course grade below B-.

Course requirements for M.S. degree

Entering Fall 2025	**Previous years**
BIOL 601 Intro to Graduate Studies (1st sem, 3 cr)	same
BIOL 602 Research Design & Methods (1st sem, 1st module)	not required
BIOL 682 Research Seminar (at least 2 cr, 3 recommended)	at least 1 cr, 3 recommended
BIOL 695 Graduate Research (at least 9 cr, only 9 count)	same
Additional 500 and 600 level electives	—
BIOL 700 Thesis (in 4th semester, take 12 credits, 6 count)	same

Students should complete all course requirements (except the 6 credits of BIOL 700) by the end of their third semester. Exceptions to this policy may be granted for students who have been supported on Research Assistantships; such students and their advisors should discuss potential exceptions with the Biology Director of Graduate Studies and the A&S Dean of Graduate Studies and Research. Students who have completed their coursework (24 degree-counting credits comprised of 9 credits of BIOL 695 and at least 15 course credits) should register as "Research Graduate Students," whereby they are charged for only a single credit hour of tuition. Students with this status should register for 12 credits of BIOL 700 (Thesis) (see details in Section V, Registration and Tuition).

BIOL 695/700 credits: The M.S. degree requires 9 credits of BIOL 695; however, students often take additional BIOL 695 credits to maintain full-time status even though these extra credits do not count toward the degree. Similarly, the M.S. degree requires 6 credits of BIOL 700, but students should enroll in 12 credits of BIOL 700 in their 4th semester.

Courses outside of Biology: With the approval of the thesis committee and the A&S Dean of Graduate Studies and Research, a student may take courses in other departments or schools at W&M; however, the credit hours may not total more than 6 of the 15 course credits required. With similar approvals, a student may take courses numbered in the 400s or lower, but such courses will neither count toward the minimum coursework requirement nor toward the upgrading of provisional status. Importantly, 300-level courses can never be cross-listed with graduate courses. 400-level undergraduate courses may either have a pre-existing, co-listed 500-level section or a faculty member may be willing to offer one.

Typical Schedule of Coursework for Biology M.S.

1st semester

- 3 cr. BIOL 601 Intro to Graduate Studies – write research proposal
- 1–2 cr. BIOL 602 Research Design and Methods (1st credit required, 2nd recommended)
- 1 cr. BIOL 682 Research Seminar (focused on student research talks)

- 2–6 cr. Electives*
- x cr. BIOL 695 Graduate Research (enough to total 9–12 credits)

*Students should consult with their advisor regarding whether they should take or sit in a 300-level course such as Biostatistics or Molecular Cell Biology during this first semester.

2nd semester

- 1 cr. BIOL 682 Research Seminar (focused on comps prep)
- 3–6 cr. Electives
- x cr. BIOL 695 Graduate Research (enough to total 9–12 credits)

Summer – full-time research

3rd semester

- 1 cr. BIOL 682 Research Seminar (recommended)
- 0–3 cr. Electives (to complete a total of at least 15 course credits other than BIOL 695)
- 1–9 cr. BIOL 695 Graduate Research (enough to total 9–12 credits)

4th semester

- 12 cr. BIOL 700 Thesis

Thesis defense – in 4th semester or most commonly the following summer

Steps Toward Completing a Graduate Research Project

In addition to their coursework, students must complete and successfully defend a research thesis. Successful completion of a research thesis normally involves a two-year effort resulting in the production of original research that is of publishable quality and acceptable to the thesis committee. Research experience is an integral part of the thesis program. Its primary function is to teach, firsthand, how biologists gather, interpret, and publish data. Research generally involves:

1. Scholarship, the critical analysis of information provided by other investigators.
2. Original research through observations, field studies, controlled laboratory experimentation, or the development of predictive theory.
3. The dissemination of research results, typically by publication in a peer-reviewed journal.

In the case of thesis research, the written thesis forms an essential part of the dissemination process. Students are strongly encouraged to present their thesis research at the annual Graduate Student Research Symposium organized by the University, as well as at other regional and national meetings.

Choosing an advisor and forming a thesis committee: To complete the program in a timely manner, most students choose a research advisor before starting the program. M.S. students matriculating in the fall should officially commit to a research advisor, who must be a member of the Biology Department, by

Nov. 1 of their first semester. In consultation with their advisor, a student also selects at least two additional department faculty who, along with the advisor, will form the student's thesis committee. If appropriate, additional committee members from within or outside the department may be added. For students matriculating in the fall, the members of the thesis committee must be selected by Nov. 15, and the Thesis Committee Designation Form should be submitted to the Biology Office by this date.

The commitment between a student and thesis advisor is by mutual consent. However, the program recognizes that student interests can change. Students wishing to switch advisors should consult both the present and potential new advisor, along with the Director of Graduate Studies, to ensure an amicable transition to the new research focus. Such changes require approval of the Graduate Committee after the first semester of residence.

Schedule of thesis committee meetings: Following approval of the thesis committee by the Director of Graduate Studies, each student must hold a first committee meeting by the end of the first semester or by the first week of their second semester in the program. At or before this meeting, the student should provide the committee with a draft prospectus of their research project (typically the version they develop and write as part of BIOL 601 – Intro to Graduate Studies). The committee will discuss the draft prospectus and assess the student's level of preparation. In addition, the date and format for the student's Comprehensive Examination will be determined (see below). A record of this meeting, including the accepted prospectus, shall be filed in the student's permanent department folder.

The committee will meet again before the end of the second semester to administer and assess the student's performance on the Comprehensive Exam. For students matriculating in the fall, the Comprehensive Exam must be either passed or passed conditionally no later than May 30 of their second semester. Students can petition the Director of Graduate Studies, by letter, to nominate a delayed date for their Comprehensive Exam if there are extenuating circumstances (e.g., illness). A record of the Graduate Comprehensive Exam feedback form must be placed in the student's file.

To stay on track, students should schedule formal meetings with their thesis committee at least once every semester. A record of these meetings should be summarized on the Thesis Committee Meeting Evaluation Form, which should be added to the student's file. It is the student's responsibility to maintain communication with their committee.

The following table summarizes the expected timeline of progress for M.S. students matriculating in a fall semester. M.A. students must also complete their Comprehensive Exam following the same schedule:

Timeline	**Student Activity/Responsibility**
Nov 1 (for fall matriculation)	Commit to a specific research advisor
Nov 15 (for fall matriculation)	Selection of thesis committee and submission of thesis committee designation form to Biology Office

Timeline	Student Activity/Responsibility
By first week of 2nd semester	Hold first committee meeting following Director of Graduate Studies' approval of the committee membership. Commitment should agree on the format of the Comprehensive Exam
May 30 (for fall matriculation)	Comprehensive Exam passed, or passed conditionally
By end of 3rd semester	Third thesis committee meeting
By end of 4th semester	Fourth thesis committee meeting

Failure to meet the above timeline will result in the student being moved to probationary status. A probationary student cannot hold a Teaching Assistantship. All deadlines can be appealed, by letter, to the Director of Graduate Studies if there are extenuating circumstances.

For students matriculating in a spring semester, a schedule for research advisor and thesis committee selection, as well as thesis committee meetings and comprehensive exam dates, must be developed by the student in consultation with their research advisor and approved by the Director of Graduate Studies.

Written Thesis and Thesis Defense: After completion of the research project, the student must prepare a written thesis to be submitted to the Arts and Sciences Graduate Program upon the approval of the thesis committee. Formatting instructions for theses and semester-specific graduation deadlines can be found on the University's Arts and Sciences Graduate Program website. These instructions change from time to time, so students should not rely on previous theses as formatting guides. The title page of the thesis needs to be approved by the Office of Graduate Research and Studies before being signed off by the committee. The student must defend the thesis by presenting a formal seminar to the department, followed by an oral examination conducted by the thesis committee. The department must be notified one week prior to the date of the thesis seminar. A final draft of the thesis should also be presented to the thesis committee at least one week prior to the seminar. During the semester in which the thesis will be defended, the student should register for 12 credits of BIOL 700 Thesis.

b) M.A. Non-thesis Program

Under special circumstances and with the consent of the graduate committee, students may obtain an M.A. degree in Biology. M.A. students must complete 32 semester hours of courses, numbered in the 500–600s, at least 20 of which must be numbered in the 600s. Each student must achieve a cumulative grade point average of 3.0 or better on a 4.0-point scale in all courses undertaken for graduate credit at William & Mary after admission to the graduate program. No credit toward a degree will be allowed for a course in which a student receives a grade below "C" (grade point = 2.0). M.A. students are not

guaranteed TA support; such support must be approved for full-time M.A. students by the Dean of Graduate Studies and Research.

Within the 32 credit hours, non-thesis students must successfully complete BIOL 601 (Introduction to Graduate Studies), the 1st credit of BIOL 602 (Research Design and Methods) during their first year in the program, and at least two (up to a maximum of 3) credits of BIOL 682 (Research Seminar). Non-thesis students cannot receive credit for 700-level courses. However, they can take up to a total of 6 credits for research, as BIOL 694 (Directed Research Topics), which may be converted from BIOL 695 credits if needed. Non-thesis students must also pass a Graduate Student Comprehensive Examination.

As with students in the M.S. track (see above), M.A. students may take a limited number of courses in other departments for up to a maximum of 12 semester hours. Non-thesis students must seek permission from the Graduate Committee and the Dean of Graduate Studies and Research prior to registering for such courses. Non-thesis students should choose a faculty member as an advisor with whom they can consult on a regular basis. M.A. students must meet the same requirements as M.S. students regarding Research Seminar (BIOL 682), seminar attendance, and the Comprehensive Examination (see below).

III. COMPREHENSIVE EXAMINATION

The purpose of the Graduate Student Comprehensive Exam is to ensure that all students have a basic knowledge of a broad sub-discipline within biology and, for M.S. students, more advanced knowledge in the specific area of their thesis topic. During the first semester of the first year of graduate studies, M.S. students should select a thesis advisor as well as a thesis committee consisting of at least two additional members from the Biology Department. Additional committee members can be faculty from outside the department. Deadlines for forming this committee and specifying the format of the Comprehensive Exam are described earlier in this handbook. The Comprehensive Exam should be tailored to the individual student's needs and research specialty.

The following flexible format is to be used as a starting point for designing Comprehensive Exams for M.S. students. It should be noted that students, advisors, and committee members should use these suggestions as a starting point for the exam. Additional requirements can be put on the student as deemed necessary by their examining committee. The format of the exam must be developed in conversation with the student and the whole committee. Also, the examining committee must be the same as the thesis committee (except in extenuating circumstances) and must include two members from the biology faculty in addition to the primary thesis advisor.

Core components:

Demonstration of Appropriate Background Knowledge. M.S. students must demonstrate that they have the necessary background to be able to place their research and advanced coursework into the context of basic biological knowledge. Therefore, at the time of their second committee meeting (i.e., by 4 weeks into their second semester), each student should be given a list of up to 3–5 biology topics by each committee member. The student can be asked questions about these topics during the Comprehensive Exam, and each student must satisfy the majority of the committee that they have sufficient knowledge of these areas.

Defense of the Thesis Proposal. A major function of the Comprehensive Exam is to ensure that the M.S. student has developed a robust proposal that will yield an acceptable thesis. Each student must hand each member of their thesis committee a copy of their revised thesis proposal at least two weeks before the exam. In the exam, each student must give a brief presentation (approximately 15 minutes) about their proposal, and then the thesis committee will examine the student on various aspects of the proposal. The student must satisfy the majority of the thesis committee that their proposal is satisfactory for progression in the program. Ideally, this latter part of the exam will turn into a productive committee meeting focused on fine-tuning the student's thesis proposal.

Common but variable components of the comprehensive exam:

Presentation and Critique of a Published Manuscript. One of the key skills that M.S. students must develop is the ability to critically evaluate primary literature. Many thesis committees want to see students exhibit this skill in the context of their comprehensive exam. These students, in collaboration with their advisor, will select a published paper that the student will present for approximately 5 minutes during the exam. The committee will then examine the student orally for a further 15 minutes (approximately) to test the student's ability to critically evaluate the paper. The student must pass this part of the exam to the satisfaction of the majority of the committee. Students are advised to choose a manuscript that is fundamental to their proposed research project.

Presentation and Discussion of Research Data: Mastery of the technical skills required to carry out experiments and the analytic skills to interpret the data is key to a student's successful completion of a research thesis. Thus, for many students, one important element of the comprehensive exam is that the student will present and discuss their experimental results to date, even if the findings remain preliminary. The committee will assess the student's progress in mastering the essential technical skills as well as their understanding of what can or can't be concluded from their results.

Logistics:

Each exam lasts approximately two hours. The Comprehensive Exam has four outcomes: (i) Pass; (ii) Provisional Pass, if additional requirements stipulated by the examining committee are met by a designated date; (iii) Not Passed, but the student can retake the exam by a specified date; (iv) Fail and dismissal from the program. The result of the exam will be communicated to the student immediately following the meeting, and any additional work and timelines must be specified at that time. Failure to meet additional timelines and requirements will result in the student being moved to probationary status.

For M.A. students, there will be an exam of a more general nature administered by a committee composed of the student's advisor and two additional Biology faculty members. The exam should include the elements described above, except for the "Defense of the Thesis Proposal." For both the M.S. and M.A. students, the committee members will decide, based upon the results of the exam, what further action (which may include additional coursework, reexamination, or dismissal) might be required.

IV. GENERAL RESPONSIBILITIES

In addition to completing the required coursework and thesis research outlined above, there are additional responsibilities all graduate students must meet.

1. Students may be required to complete one or more undergraduate courses to fill in any gaps in their background from their undergraduate degree that are either necessary as prerequisites for their graduate coursework or are foundational for their teaching obligations and successful completion of their research thesis. Essential levels of mathematics and chemistry depend on what is appropriate for the individual student. Undergraduate courses taken to fulfill this requirement cannot be applied toward credit hours of graduate courses required for the master's degree. Prior to registering for the first semester, students should review their undergraduate record with their advisor and, as appropriate, the Director of Graduate Studies to plan their coursework program.

2. Graduate students may not repeat courses they successfully completed during their undergraduate program at this or any another institution. Decisions relating to this matter will be made by the Graduate Student Committee.

3. An overall 3.0 grade point average on a 4.0 scale must be maintained in all courses taken for graduate credit, and no credit will be awarded for grades lower than 2.7 (B-). Regular students who drop below a 3.0 average will be given a one-semester probationary period to bring up their average. Failure to attain a 3.0 cumulative average, with a course load of at least 6 credits, by the end of the following semester will result in dismissal from the program. Provisional students who do not achieve a 3.0 average in their first semester are subject to immediate dismissal, with no probationary period. A provisional student will receive regular status after the completion of 7 graduate credits with a 3.0 average.

4. All students are expected to attend and participate in the Department's seminar programs as well as attend meetings with invited seminar speakers.

5. A change in program from an M.S. to an M.A. may be made only upon prior approval of the Biology Graduate Committee and the A&S Dean of Graduate Studies and Research. This change may require repayment of any funds received by the student from either the University or the advisor in support of their summer research. Students who make the switch to an M.A. should not assume continued support as a TA without official approval by the Dean of Graduate Studies and Research.

6. All M.S. students are expected to actively seek grant funding to support their research. There are many internal (i.e., within William & Mary) and external sources of funding indexed on the program's Blackboard site, as well as resources available through the University's Office of Grants and Research Administration and The Graduate House. While most faculty will be able to provide financial support for graduate student projects, it is the graduate students' responsibility to ensure they have appropriate funding for their intended thesis project.

V. REGISTRATION AND TUITION

To remain in good standing, all students must maintain continuous enrollment during regular semesters until the degree is awarded (summer registration is not required).

An M.S. student who has completed all degree requirements except for the 6 credits of BIOL 700 (Thesis) is eligible to register as a "Research Graduate" student for 12 credit hours of BIOL 700 Thesis while paying for only one credit in tuition. Research students are considered full-time students for all purposes. Full-time status (9–12 credits per semester) is generally necessary to prevent student loans from coming due and for coverage on parents' insurance plans.

A low-cost alternative to the research designation, GRAD 999, is also available for students who have completed all their requirements except the thesis. With prior approval from the Graduate Committee, students in good standing can remain active in the M.S. program with Continuous Enrollment Status by enrolling in GRAD 999 only and by paying the "Continuous Enrollment Fee" (the current fee is $150 per semester). The following categories of students are NOT eligible and should register as Research Graduate students:

a. Students employed in a graduate student appointment (e.g., Teaching Assistant, Research Assistant)
b. Students who choose to continue to defer repayment of student loan or retain coverage on their parent's insurance
c. International students requiring visas should seek guidance from the Reves Center to determine if they can enroll in GRAD 999.

Exceptions to the continuous enrollment policy involving a formal leave of absence may be granted, but only for reasons beyond the student's control, subject to approval by the thesis advisor, department Graduate Committee, and the Dean. Students who are involved with research, or who wish to continue to use University facilities in any way, or to consult with faculty (including the advisor), will not be eligible for a leave of absence.

William & Mary requires payment of full tuition by anyone registering for 9 or more credits. However, satisfactory progress in coursework can be maintained by registering for fewer than 9 credits each semester. Therefore, students not receiving tuition waivers may be able to minimize expenses by registering as part-time students and paying tuition on a per-credit basis.

VI. FINANCIAL AID

The department offers several teaching assistantships which provide a stipend as well as remission of tuition and all fees. Students offered assistantships at the time of their original acceptance into the program will be eligible for four consecutive semesters of such support if they remain in good academic standing and otherwise satisfactorily fulfill all obligations. In addition, students awarded an assistantship at the time of their original acceptance who are pursuing the M.S. track will often receive summer support; this money may need to be returned to the department if the student later changes to the M.A. program.

The length of time during which support is provided to those students who are offered an assistantship at a later stage in their program will be subject to departmental needs at that time. Continuing students without teaching assistantships may re-apply for a TA and provide additional information and letters of recommendation to the Director of Graduate Studies in support of their application.

Overall performance of all teaching assistants will be evaluated at the end of each semester. Students who are placed on probation or whose performance as a teaching assistant is substandard are subject to loss of the assistantship.

Students receiving a teaching assistantship should register for at least 9 but no more than 12 credits per semester. Teaching assistants must attend all lectures, laboratories, grading sessions, and preparatory meetings required of them by the course instructor. Because of the full-time commitment inherent in their coursework, teaching, research, and departmental obligations, teaching assistants are not permitted to be paid for additional work during the academic year.

Depending on an advisor's grant funding, some full-time students may be supported on a research assistantship (RA) for one or more semesters. To determine if this option is possible, students should talk with their advisor.

Students who pursue an M.S. degree should expect to receive summer support from their advisor's grant funds. For those holding a teaching assistantship, part of these summer funds is currently supported by the Office of Graduate Studies. Summer funds to support full-time research are guaranteed for the 1st summer. Funds for the second summer are contingent on the student working full-time on their thesis research throughout the entire summer. Thesis students who are not on a teaching assistantship may also receive summer support subject to availability of funds. Other financial aid to students may involve faculty grants or part-time employment on an hourly basis in the department.

VII. PROGRESS IN THE PROGRAM

Sustained progress toward the degree is valuable to the student, to the faculty, and to the University as a whole. Failure to meet the timeline described earlier will result in a student being moved to probationary status and may, subsequently, result in suspension from the program.

This handbook outlines a two-year program, with students finishing all degree requirements by the end of their fourth semester. It is especially important that M.S. students make substantial progress on research during the first summer, if not before. This, in turn, requires careful planning, thinking, and discussion in the first two semesters in residence. All students are strongly urged to make every effort to adhere to this timetable.

It is the student's responsibility to ensure that all forms are completed on schedule.

Appeal of provisions of this handbook may be made in writing to the Director of Graduate Studies, who will discuss each case with the Graduate Committee. Consideration of such appeals by the full Biology Department Faculty may be appropriate.