

Guidelines for Supervision and Maintenance of Quality Standards

A. Time Limits to Graduation: Exceptions must be approved by the Department Head.

1. Ph.D degree
From B.S. to Ph. D. -- 6 years
From M.S. to Ph.D. -- 4.5 years
2. M.S. degree:
From B.S. to M.S. -- 3 years

B. Maximum Cumulative Time Limits for Financial Assistance (GTA/GRA/GA, wages, etc.) provided by Department and/or CALS: Exceptions must be approved by the Department head. Advisors can employ extramural funds up to time limits for graduation.

- From B.S. to M.S. -- 2 years
- From B.S. to Ph.D. -- 5 years
- From M.S. to Ph.D. -- 3 years

C. Annual Evaluation

The Graduate Student Evaluation Form for each graduate student should be filed annually with the graduate coordinator by the end of each spring semester. [Download Graduate Student Evaluation Form.](#)

D. Student Responsibilities:

1. Form advisory committee and complete program of study by the end of first 6 months after the start of degree for M.S. and by the end of first calendar year for Ph.D. candidates. [Download departmental program of study form.](#) A research working plan must be filed with the Graduate Coordinator by the end of the first calendar year in residence.
2. Thesis/Dissertation proposal approved by Advisory Committee by end of second semester (exceptions for departments with unique requirements for students requiring training before starting program).
3. M.S. Thesis to be completed by the end of the 6th semester.
4. New Ph. D. students who have not initiated research projects should consider taking a full load of courses (4 courses) during the first and/or second semesters.
5. Ph.D. students should take preliminary exam before the end of the second year.

6. Ph.D. defense by end of 4.5 years for those with M.S. or 6 years for those with B.S.
7. Publication of research findings in professional journals. Students should provide the academic advisor with a manuscript(s) for submission to a journal by the time of graduation.
8. If the student does not complete the degree, ownership of the data accumulated during the student's research belongs to the supervisor/department.
9. Develop oral presentation skills through participation in seminar/classroom activities.

E. Major Professor Responsibilities:

1. Provide students with a research project and teaching experience that will significantly advance the field of horticulture or other plant sciences and will prepare the student to compete effectively for academic, industry, or government positions.
2. Advisors, departments, and the college should conform to the recommendations of the Statement on Graduate Students of the American Association of University Professors, of which Virginia Tech is a member. This statement outlines procedures in such areas as:
 - informing students of their rights, responsibilities, and requirements.
 - student grievance procedures.
 - academic freedom for graduate students.
3. Monitor student progress and ensure that each student is on schedule to complete each stage of his/her program.
4. Terminate financial assistance for weak students by the end of first year or earlier. Student should be informed in writing at least 60 days before termination date.
5. Ensure that students become familiar with bibliographic tools (e.g. EndNote or Reference Manager).
6. Emphasize the importance of meeting deadlines to students.
7. Respect student rights; read Graduate School guidelines.
8. Write letter to student if performance is unsatisfactory.

9. Ensure that student completes thesis/dissertation within two weeks after passing oral defense. Emphasize to student that passing the final oral exam does not mean getting a degree. Completion of degree means that the thesis/dissertation has been accepted and signed by the Advisory Committee and conformed to all Graduate school ETD guidelines. Extensions for submitting ETD should not exceed 6 months.

10. Support students in attending professional meetings and activities as part of their professional development.

F. Departmental Responsibilities:

1. Ensure Advisors/Students adhere to timelines; require forms to be filled if assistantship is to be continued and document the need.
2. Help students prepare resumes and develop interview and social skills.
3. Require students to be Teaching Assistants for 1 semester to develop teaching skills.
4. Develop writing skills for students, including writing of grant proposals, through formal courses or departmental requirements that test these skills.
5. Support students in attending professional meetings and activities as part of their professional development.
6. Department Heads/Graduate Coordinators must monitor progress of student and remind advisors to meet college guidelines.

Criteria and Procedures

A. Graduate Courses in Horticulture

No distinction is made between M.S. and Ph.D. level courses within the Department of Horticulture. All entering graduate students are expected to enroll in Hort 5104: Introduction to Graduate Studies and Research in the earliest semester possible, depending on when they start their program. Orientation of new students and review of these guidelines will be addressed in this course. Exceptions can be granted by the student's advisory committee and approval from the Department Head. All Horticulture graduate courses are open to both M.S. and Ph.D. candidates. Instructors of these courses must have faculty status and hold a terminal degree with experience and training in the specific area of the course. It falls within the jurisdiction of the department head to assign or authorize courses to specific faculty members.

B. Thesis and Dissertation Supervision

1. Advisors of M.S. students must hold the terminal degree in the area of expertise of the student's interest. Advisors must have demonstrated competency by a recent record of research publication or other measure of scholarly activity.
2. Advisors of doctoral students must hold the Ph.D. degree and should have had at least one year of experience and service on a graduate committee. A record of independent research and publication in refereed journals in the area of expertise of potential advisees is also required.
3. Selection of committee members is at the discretion of each advisor in conjunction with the department head.
4. The departmental Graduate Committee surveys appropriate faculty as potential advisors and recommends the assignment of students to advisors to the department head.

C. Graduate Standards for Admission

Criteria for Admission of M.S. Students for Regular Status

a. U.S. citizens

1. QCA greater than 3.0 for the last two years or 60 semester hours of coursework.
2. The Graduate Record Examination is required for all applicants unless waived by the Department Head. The advanced subject area test is not required on the Graduate Record Examination. It is expected that applicants will have received a minimum GRE score of 550 (verbal) and 600 (quantitative). However, the GRE score will not be used as the sole determinant of admission.
3. Positive references indicating aptitude for graduate studies, especially for research.
4. Relevant background and course work in the field of interest.
5. At least one faculty member willing to advise the applicant, general availability of faculty for a committee competent in the field of interest, and general agreement of faculty in the field of interest that the student should be accepted for graduate work.

b. International students from non English speaking countries are expected to have the same qualifications as American students. The only additional requirement is a score of greater than 550 (paper), 213 (computer) and 80 (internet) on the TOEFL.

Criteria for Admission of Doctoral Students

a. U.S. citizens: In addition to qualifications described for M.S. applicants, Ph.D. applicants should either hold the M.S. degree in the appropriate area of interest or possess a considerably stronger academic record than the general applicant, as judged by the Graduate Committee. Admission on a provisional status is not available to Ph.D. applicants

b. International students from non English speaking countries are expected to have the same qualifications as American students. The only additional requirement is a score of greater than 550 (paper), 213 (computer) and 80 (internet) on the TOEFL.

Applications are circulated through the Graduate Committee with each member providing his/her recommendation for acceptance and potential award of assistantship. The Graduate Committee chairperson, in consultation with the department head, makes final decisions regarding admission. Positive decisions are dependent upon availability of a suitable advisor. The application with recommendation of acceptance or rejection is returned to the graduate school for official notification of the candidate.

Administration of graduate standards in the department

A. The Graduate Committee is appointed by the department head and is composed of faculty actively engaged in advising graduate students. The Graduate Committee chairman will serve as liaison with the Dean of the College of Agriculture and the Dean of the Graduate School. Final decisions on acceptance/rejection of applicants and award of departmental assistantships are made by the department head.

B. During Review of the Applicants for Admission, the Graduate Committee should ensure that established criteria are met. This includes assurance that a suitable advisor is available for any potential graduate student.

C. Members of the Graduate Committee are selected by the department head each summer for the subsequent academic year.

D. Appeals of Admission are made to the Graduate Committee chairman.

Procedures and Criteria Related to Progress toward the Degree

A. Program of Study

1. Required courses

Course type	M.S.	Ph.D.**
	Minimum	Minimum
BION 5124, HORT/PPWS 5524-5534 (Biochemistry for the Life Sciences, Advanced Plant Physiology)	-	-
BION, HORT, CSES, PPWS, BIOL (4000-6000)	9*	-
5000-6000 classes listed above or equivalent	-	11
STAT 5605-5606,5615-5616, 4204,5204,5634 (Biometry, Statistics in Research, Experimental Designs, Experimental Design and Analysis I, Statistics for Behavioral Sciences)	3	6
HORT 5104 (Intro Grad Studies)	1	1
HORT 5004 (HORT Seminar)	1	2
<i>(minimum classroom requirement)</i>	<i>(20)</i>	<i>(20)</i>
Research and Dissertation (HORT 5994/7994; min-max)	6-10	30-70
Total Hours Required	30	90
*Independent study not applicable. Maximum of 9 hours of 4000 classes (must be approved for graduate credit). All others must be 5000-6000 **Includes courses taken at M.S. level. All classes must be at 5000-6000 level.		

The student must also meet minimum guidelines prescribed by the Graduate School, in the Graduate Catalog ([Download](#)).

B. Changes in Program

All program changes must be approved by all members of the student's Advisory Committee and the department head before submission to the Graduate School. Such changes must be submitted on the form entitled Request for Plan of Study Changes available at the graduate school website ([Download](#)).

C. Residence

For M.S. candidates, at least two semesters, not necessarily continuous, must be in residence at the university and at least 16 semester hours of course work must be earned at Virginia Tech.

For Ph.D. candidates, at least one full, normally continuous, academic year (24 credit hours) must be spent in residence on the campus. At least 15 hours of course work (not research 7994) must be earned while in residence.

D. Participation in Seminars

Seminars are an integral part of the total academic program within the department. Seminars are presented by invited speakers, Horticulture, other Virginia Tech faculty, and graduate students. It is one of the opportunities for faculty and students to meet and exchange ideas.

One of the principal features of seminar is to provide students an opportunity to sharpen their communication skills. The ability to communicate effectively with colleagues and lay personnel is extremely important in the development of a professional scientist. Another important feature of seminars is to provide all members of the university community with a clearer picture of the total scope and breadth of research activities. Seminars also provide students an opportunity to receive constructive suggestions concerning research.

All graduate students are expected to participate in seminars during their period of graduate study except when course conflicts occur. Students taking Horticulture seminar for credit are expected to present a seminar during the semester of enrollment. The specific time is arranged by the chairman of the Seminar Committee for that semester. The topic to be presented will be determined by the student and major advisor and reviewed by the chairman of the Seminar Committee. Each student should have a brief summary statement prepared with the approval of the advisor and the chairman of the Seminar Committee for distribution at the seminar presentation.

Examples of seminar series' in which students may participate include, but are not limited to, Horticulture, Plant Pathology, Physiology and Weed Science, Molecular Cell Biology and Biotechnology, Botany, Biology, Bioinformatics, Biochemistry, Crop, Soil and Environmental Sciences, Biosystems Engineering, Molecular Plant Sciences, and Plant Molecular Biology Discussion Group.

E. Reevaluation of Required Course Work as needed by Graduate Committee.

Use request for plan of study changes form ([Download](#)).

F. Examinations

Preliminary examination, Ph.D. The preliminary exam is intended to be a comprehensive test of the student's mastery of subject matter in the program of study, and examines the development of clear thought, written and verbal expression, and the capability to pursue independent research.

Candidates for the Ph.D. degree will complete first a written and then an oral examination. The nature of the questions is left to the discretion of each committee member and may be closed or open book. If a satisfactory performance is registered on the written exam, the oral exam will be scheduled to follow within 45 days. The time and date of the preliminary oral exam must be scheduled by the graduate student and registered with the graduate school on the form entitled Request to Admit Candidate to the Preliminary Examination available at the graduate school website ([Download Prelim Exam Form](#)). The time and date of the preliminary oral exam will be announced to the faculty of the department two weeks prior to the exam. While all department faculty are welcome to participate in this exam, only the student's Advisory Committee will decide on the acceptability of the student's performance. Both written and oral exams must be taken at least nine months before graduation and prior to completing the second year of study (course work and/or research) for the degree. In the event that a student fails either exam, only one repeat attempt to achieve a satisfactory performance will be allowed.

Final exam for both the thesis M.S. and Ph.D. degrees, a final oral exam is required, dealing intensively with the candidate's field of specialization exhibited in the thesis or dissertation. However, the exam is not confined exclusively to the subject matter of the thesis or dissertation. It is a demonstration of the student's mastery of plant sciences as well as a defense of the research results and related subject matter. The final exam must be scheduled by the graduate student and registered with the graduate school on the form entitled Request to Admit Candidate to the Final Examination available at the graduate school website ([Download Final Exam Form](#)). Ph.D. defense should be complete by the end of 4.5 years for those with M.S. or 6 years for those with B.S.

G. Appointing Advisory Committee

Members of the Advisory Committee may be suggested by the student and approved by the major advisor. Committee members should be selected for their background in the area of specialization and their potential contributions as consultants or active participators in the student's research. For the M.S. candidate, the committee should consist of at least three faculty members, whereas five, including at least one from outside the student's major department, are required for the Ph.D. committee. Membership on advisory committees is a major responsibility that faculty should not enter into unless they are prepared to make a commitment to fulfill the responsibilities of a committee member. These responsibilities include careful review of the research proposal with suggestions for improvement, providing technical expertise that complement the skills of the major advisor such that the student has at

his disposal a wide array of technical skills required to complete a current research problem in the plant sciences and a willingness to teach such techniques to the student, thesis/dissertation review to ensure that the research is completed and presented in a manner that facilitates publication, a keen eye to the possibility of ethical breaches, and fair-minded participation on the student's oral and written examinations.

H. Changing Committee Memberships

Changes in a student's committee will be granted only upon approval of all committee members, new and old. A form is available at the Graduate School website ([Download Form](#)) for change in committee composition.

I. Approving Dissertations

Research proposal: The proposal is expected to be specific and detailed, including the following components:

1. Introduction a statement as to why the work is important.
2. Review of literature this should be sufficiently detailed to show that the student is familiar with the current state of the literature in the specific area.
3. Objectives one or more short factual statements indicating the nature of the study.
4. Procedures described in sufficient detail for the committee to assess whether or not they are suitable for attaining the stated objectives.

This proposal need not be lengthy, but should clearly define what the student plans to do. The proposal is not set in stone and may change as the results of preliminary experiments are learned. Radical changes to the proposed research should be discussed in subsequent committee meetings.

Thesis, M.S. The thesis for a M.S. degree should be scholarly research worthy of publication. The M.S. thesis typically does not require the depth of independent research that is expected in a Ph.D. dissertation. However, once the student, with the counsel and guidance of the advisor, has selected a thesis problem, a proposal as outlined above will be prepared for review and approval by the Advisory Committee.

Dissertation, Ph.D. A dissertation that contributes knowledge of importance sufficient to warrant its publication will be offered by the Ph.D. candidate. Once a student has become familiar with the resources and ongoing research within the department, the student and major advisor select an area of research and then proceed to develop a specific proposal. The research proposal must be approved by the student's major advisor, and then submitted to the Advisory Committee for final review and approval.

Even though each member of the Advisory Committee may have offered suggestions regarding the "semi-final" thesis prior to the final examination, there is a good possibility that some corrections or additions will be necessary following the final examination. This is the reason the Graduate School allows a period of 2 weeks after the final examination to submit the final copies of the thesis. All theses and dissertations must be submitted electronically (<http://etd.vt.edu>) and checked by the Graduate School. Instruction for preparation of electronic theses and dissertations are offered each semester. Graduate students should participate in these classes in order to be prepared to prepare the ETD efficiently. Three hard copies of the final copy of the thesis or dissertation are generally prepared, one for the department, one for the major professor, and one for the student.

J. Orienting New Faculty to Graduate Standards and Procedures.

These guidelines will be distributed to all new faculty. In addition, an attempt will be made to involve new faculty on advisory committees as their skills appropriately match the needs of incoming graduate students.

K. Requirements and Duties of Graduate Teaching and Research Assistants

Graduate assistantships are awarded to help students support themselves while earning graduate degrees and to help the university fulfill its responsibilities in teaching and research. Once an assistantship is awarded, the student must make satisfactory progress toward completing degree requirements and must satisfactorily perform the assigned duties in order to be reappointed. Departmental Assistantships (from CALS or other internal sources) should not be viewed as the sole means of support for graduate students, as they are intended to supplement external funding supporting faculty research. Consequently, students (and faculty) should not expect to automatically receive more than one year of Departmental support for a M.S. student or more than two years of support for a Ph.D. student. Assistantships may be terminated following any semester during which the student did not maintain a QCA of at least 3.0 or did not perform the assigned duties satisfactorily. Graduate Teaching Assistantship appointments are for only 9 months; however, the department will (within the financial resources available) attempt to continue financial support during the summer months.

Average hours of duty per week Students on half time assistantships are expected to work approximately 20 hours per week, or the equivalent thereof, over and beyond the work required to earn credit for the 5994 or 7994 for which they are registered. This work may or may not be in duties associated with the student's research problem, and may be entirely teaching or research, or a combination of teaching and research duties. (See section dealing with Assistantships in the Policy and Procedures Manual.)

Evaluation of GTA performance At the end of each semester, teaching assistants will be evaluated by the instructor to which he/she was responsible for that semester. A form will be used for this evaluation and it will become a permanent part of the student's records in the department. The student will also receive a copy of the evaluation.

Virginia Tech does not discriminate against employees, students, or applicants on the basis of race, color, sex, sexual orientation, disability, age, veteran status, national origin, religion, or political affiliation. The university is subject to titles VI and VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, the Age Discrimination in Employment Act, the Vietnam Era Veteran Readjustment Assistance Act of 1974, Federal Executive Order 11246, Governor Allen's State Executive Order Number Two, and all other rules and regulations that are applicable. Anyone having questions concerning any of those regulations should contact the Equal Opportunity/Affirmative Action Office.