Department of Food Science and Technology

GRADUATE STUDENT HANDBOOK

Virginia Tech
Blacksburg, VA 24061

Revised August 2019

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.

Mission Statement

Engaging Minds to Meet Global Food and Health Challenges

Welcome to Virginia Tech and the Department of Food Science and Technology. Your decision to study for an advanced degree in Food Science represents a very important benchmark in your academic training. Our M.S. and Ph.D. degree programs are designed to be challenging, intellectually stimulating, and professionally rewarding. The faculty represents an excellent group of scholars who are dedicated to providing you an outstanding graduate education. However, ***the ultimate success of your graduate education depends on you; you are encouraged to fully apply your intellectual skills in order to take full advantage of this educational opportunity****.*

The Department of Food Science and Technology Graduate Student Handbook provides a description of the Department's graduate degree requirements, rules and regulations, etc. This Handbook is to be used in conjunction with the Graduate School Catalog and the Graduate School Manual of Policies and Procedures. These policies and procedures are discussed during a graduate student departmental orientation session which is held the first week of each Fall Semester. New graduate students also are required to take a one credit course (Graduate Professionalism in Food Science) in the Fall semester of the first year. The course, which uses this handbook as a guide, facilitates understanding of Department expectations and standards for a successful student and future food science professional. It is the individual responsibility of each student entering the Department of Food Science and Technology's Graduate Program to completely read and understand all policies and procedures outlined in this Handbook, as well as those outlined in the above cited Graduate School documents.

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I. INTRODUCTION

Food science is the discipline in which biology, chemistry, physical sciences, and engineering are used to study the nature of foods, the causes of their deterioration, and the principles underlying food processing. Food technology is the application of food science to the selection, preservation, processing, packaging, distribution, and use of safe, nutritious, and wholesome food. Therefore, Food Science and Technology is the study and application of related sciences to ultimately improve the quality and safety of foods.

A food scientist studies the physical, microbiological, and chemical makeup of food. Depending on their area of specialization, food scientists may develop ways to process, preserve, package, or store food, according to industry and government specifications and regulations. Consumers seldom think of the vast array of foods and the research and development that has resulted in tasty, nutritious, safe, and convenient foods. In order to guide students who seek to prepare themselves to contribute to the field of Food Science, the Department of Food Science and Technology at Virginia Tech offers the B.S., M.S. and Ph.D. degree programs, as well as a Food Science minor for non-majors. Food Science and Technology students are to develop a scientific understanding of foods and food processing through the application of biochemistry, chemistry, microbiology, physics, and other sciences.

Modern scientific and technological progress demands a multi-disciplinary approach and thorough training in the basic sciences. Therefore, both the graduate and undergraduate curricula are designed to provide a broad program in the basic sciences on which to build technical competence in Food Science and Technology. The food industry has increasingly shown preference for graduates who have been educated in this type of program. Both the M.S. and Ph.D. degrees require that the student complete an original research project and present the results as part of a thesis or dissertation.

The food industry utilizes the technical training of the food scientist in many ways: research and development, manufacturing and production, technical sales and service, management, quality assurance, regulatory services with state or federal government, technical writing, teaching, and consulting work. Current scientific topics and employment opportunities in the field of food science can be reviewed through the Institute of Food Technologists website (www.ift.org) and the Journal of Food Technology, an IFT publication.

II. ADMISSION PROCEDURES

Screening of applications for graduate study is initiated by the Graduate Committee. These individuals review the application to determine the applicant's background and previous academic performance. The Chairman of the Graduate Committee reviews the Committee members' comments and makes a recommendation to the Department Head. The Department Head, in turn, makes a recommendation to the Dean of the Graduate School, who notifies the student of the final decision.

A full evaluation of an application includes:

A. Performance on the Graduate Record Examination
   Our Department uses the GRE as one of the criteria for acceptance. The expected GRE scores are 151+ (verbal), 153+ (quantitative), and 3.5+ (written).

B. Student's Quality Credit Average (QCA)
QCA of 3.00 is normally required for regular student status admission. This requirement may be waived depending on the applicant's professional experience and accomplishments.

C. Letters of Recommendation
Normally three letters of recommendation are required.

D. Previous Academic Training
Students who do not have academic training equivalent to that required for a B.S. degree in Food Science and Technology at Virginia Tech will complete selected core courses before graduation (1) Food Chemistry, 2) Food Microbiology, and 3) Food Processing or Food Safety & Quality Assurance). Students without a background in a science related field may be required to complete supplemental courses before being admitted to a regular student status.

E. Research
Demonstrated ability to do independent research is an important consideration, especially for doctoral applicants. Evidence of research skills may include undergraduate research projects, Master's thesis research, industrial research and the publication/presentation of the study(s).

F. International Students
In addition to the above requirements, international students must submit the results of TOEFL test. For the internet-based test, a minimum total score of 90, and minimum scores of 20 on the reading, writing, speaking, and listening sections are expected. Alternatively, the minimum required IELTS score is 6.5.

III. GENERAL DESCRIPTION OF RESEARCH AREAS

Food research can be varied and multidisciplinary. Food scientists are involved in research that spans the entire food system from production and processing to consumption. The role of the food scientist can range anywhere from that of a microbiologist, chemist, or technologist to that of an engineer. The Virginia Tech Food Science and Technology Department is involved in a number of different research areas including: Food Safety and Microbiology, Food Chemistry and Sensory, Food Packaging and Processing, Food Fermentations and Functional Foods for Health, and Aquaculture Engineering and Products.

A. Food Safety and Microbiology
Microorganisms are of significance in food systems because they have both adverse and beneficial effects - they can cause spoilage and illness, but they are also used to produce a variety of foods through fermentation. At Virginia Tech, food microbiology research is concerned with basic and applied studies of foodborne pathogens, microbiological spoilage, prevention and control of contamination during processing, thermal and non-thermal processing, and method development to detect microorganisms and their toxins. Recently, food safety research has focused on control of major foodborne pathogens in primary agriculture production and processing through the application of new and traditional processing technologies, antimicrobials, sanitation, HACCP-based strategies, analytical methodology, and food safety education and Extension.

B. Food Chemistry and Sensory

The food chemistry and sensory research emphasis allows graduate students to focus on interactions of food components at both basic and applied levels. Understanding of molecular reactions, flavor chemistry, food composition, component interactions, and physical properties of food systems is applied to characterizing changes in food quality attributes, such as texture, color, flavor, and nutrition. Analytical and sensory methods are typically used in studying flavor chemistry. Sensory perception and physiological response related to molecular stimulation is essential to understanding the human element in food quality and safety. Sensory research also includes consumer interactions with an emotional response to food and packaging.

C. Food Packaging and Processing

An emphasis in food processing and packaging allows graduate students in food science and technology to use many of the specialized disciplines of food science in practical applied and basic research. Principles of food engineering, food microbiology, and food chemistry are combined in the food processing and packaging program. Students are engaged in such unit operations as thermal processing, aseptic processing, computer data acquisition and control, dehydration, modified atmosphere packaging, filtration, sanitation, and nondestructive evaluation methods. Students have the opportunity to determine how processing and packaging affects the foods we produce and to investigate new methods of food processing and packaging.

Process and Product Development is often commodity related. This type of research will, for the most part, be carried out in the pilot plants with equipment that is usually smaller in scale than commercial equipment. Commodities included in Virginia Tech's food research program include dairy, fruit and vegetable, meat, poultry, aquaculture, and seafood products.

D. Food Fermentations and Functional Foods for Health

Research in food fermentations and functional foods for health (focus on microbiology and chemistry) are expanding areas in our program. This also includes the health-related contributions of gut fermentations. The role of pre- and pro-biotics on food fermentation, pathogen inhibitions, and gut ecology is of value to food industry and public health.

Research in enology includes grape and wine flavor chemistry in addition to evaluation of vineyard management, fermentation management, and processing alternatives on grape chemistry. Analytical assessment of bioactive components and the biological assessment of how those components work emphasizing chemistry and biochemistry.

IV. **FACULTY** (may serve as Major Advisor for Graduate Advisory Committee)

Boyer, Renee R. Ph.D., Virginia Tech (2006). Professor, HABB1 Room 401A, Food Science and Technology, 231-4330. Safety of minimally processed fresh fruits and vegetables, attachment characteristics and removal of foodborne pathogenic bacteria to various fresh produce surfaces. Consumer food safety extension. (Food Safety and Microbiology).

Duncan, Susan E. Ph.D., University of Tennessee (1989). Professor, Food Science and Technology, and Associate Director of the Virginia Agricultural Experiment Station, Hutcheson Hall Room 104C, 231- 3766. Sensory and dairy food products and processing. (Food Chemistry and Sensory; Functional Foods for Health; Food Processing and Packaging).

Eifert, Joseph D. Ph.D., Virginia Tech (1994). Professor, HABB1 Room 401B, Food Science and Technology, 231-3658. Food safety, food laws and regulations, microbiological and chemical analysis of food, poultry processing. (Food Safety and Microbiology).

Fernández-Fraguas, Cristina. Ph.D. University Complutense of Madrid, Spain (2008). Assistant Professor, HABB1 Room TBA, Food Science and Technology. Specializes in designing food emulsions for healthy eating. (Carbohydrate Chemistry).

Huang, Haibo. Ph.D., University of Illinois at Urbana-Champaign (2013). Assistant Professor, HABB1 Room 402J, Food Science and Technology, 231-0729. Engineering solutions to improve fermentation, food byproduct valorization, process development and simulation (Food Processing, Food Fermentation)

Kuhn, David D. Ph.D., Virginia Tech (2008). Associate Professor, HABB1 Room 402E, Food Science and Technology, 231-8643. Seafood quality, seafood safety, aquaculture research and outreach. (Aquaculture; Food Processing; Food Safety and Microbiology).

Lahne, Jacob, Ph.D., University of Vermont (2014). Assistant Professor, HABB1 Room 402F, 231-7428. Sensory evaluations and consumer perceptions, craft and artisan food production, and flavor profiling. (Sensory evaluation, Enology and Brewing Science, Product development).

Marcy, Joseph E. Ph.D., N.C. State University (1980). Professor and Department Head, FST Room 22A, Food Science and Technology, 231-7850. Interaction between Food Packaging and its Contents (Food Packaging and Processing).

O'Keefe, Sean F. Ph.D., Iowa State University (1988). Professor, HABB1 Room 402A, Food Science and Technology, 231-2075. Food chemistry, lipid and flavor chemistry. (Food Chemistry; Food Fermentations and Functional Foods for Health).

Ovissipour, Mahmoudreza (Reza) Ph.D. Washington State University (2017) and Tarbiat Modares University, Iran (2010). Assistant Professor, Virginia Seafood Agricultural Research and Extension Center, Hampton, VA (Seafood Safety and Quality)

Ponder, Monica A. Ph.D., Michigan State University (2005). Associate Professor. HABB1 Room 401D, 231-5031. Microbial ecology of food commodities. Pathogen detection and

characterization of activity using molecular methods. Host-pathogen interaction. (Food Safety and Microbiology; Food Fermentations and Functional Foods for Health).

Stewart, Amanda C. Ph.D., Purdue University (2013). Assistant Professor. HABB1 Room 401F, Food Science and Technology, 231-0868. Enology and fermentation of grapes and other food systems (Food Fermentations and Functional Foods for Health).

Strawn, Laura K. Ph.D. Cornell University (2014). Assistant Professor. Eastern Shore Agriculture Research and Extension Center. Fresh Produce Food Safety (Food Safety and Microbiology).

Williams, Robert C. Ph.D. University of Tennessee (2001). Professor and Extension Project Leader, HABB1 Room 401C, Food Science and Technology, 231-4106. Detection and control of pathogenic bacteria. Food safety education for Virginia industry. (Food Safety and Microbiology).

Other Faculty (that may serve as co-Chairs or members of Graduate Advisory Committees)

Chang, Elizabeth A. Ph.D., Cornell University (2019). Enology Extension Specialist. HABB1 Room 402D, Food Science and Technology, 231-2075. Enology (Food Fermentation; Food Chemistry).

Chase, Melissa W. Ph.D., Virginia Tech (2004). Consumer Food Safety Program Manager, HABB1 Room 401E, 231-9749. Consumer food safety (Food Safety and Microbiology).

Sumner, Susan S. Ph.D., University of Wisconsin-Madison (1987). Associate Dean, Academic Programs, Director, CALS Resident Instruction, Room 1070, Litton Reaves, 231-5290. Food safety, dairy and fruit and vegetable safety. (Food Safety and Microbiology).

Yin, Yun Ph.D., University of Illinois at Urbana (2017). Research Assistant Professor, HABB1 Room 401J, 231-2029. Aroma and flavor compounds in food systems, flavor analysis and sensory evaluation.

V. REGISTRATION AND ARRIVAL

Students need to arrive at least a week before the beginning of the first semester they are to enroll. A general orientation session will be held the week before classes start in the fall and during the first seminar class in the spring semester. This session will introduce the student to the graduate handbook and provide information relative to safety, facility use, and course registration. The “Graduate Student Expectations for Successful Graduate Study” (Appendix A), as well as the “Advisor Expectations for Successful Graduate Student Advising” (Appendix B) are important documents to review. The student is to be fully aware of and commit to meeting the expectations.

Soon after arrival, students should report to the Main Office (Room 22) of the Food Science and Technology Department and schedule an appointment with the Department Head and their Major Advisor.

A. Choosing the Major Advisor

The Major Advisor should be identified prior to the student's arrival. In the event that a given faculty member has been assigned as Major Advisor, the faculty member will be responsible for informing the student before his/her arrival. Students without an identified Major Advisor will be assigned an interim Major Advisor by the Department Head. If an interim Major Advisor is assigned to the student, the student will be required to choose a permanent advisor by the end of his/her first semester of study by mutual agreement between the student, the Major Advisor, and the Department Head.

The Major Advisor serves as the Chair of the student's Graduate Advisory Committee and is to be a faculty member of the Food Science and Technology Department with technical expertise in the student's intended major field of study. If a student is being funded from a research project, in most cases the student's Major Advisor will be the principal investigator of the project.

B. Faculty, Staff, and Research Associates Interview Introductions

It is important for graduate students to get to know faculty and vice versa, thus all graduate students will be required to meet on an individual basis with each of the faculty, staff, research associates and postdoc members in the Department. This is completed as a task in the FST 5054 course. Appendix C (Faculty, Staff, and Research Associates Interview Signature Sheet) is a check sheet that must be filled out and returned to the Staff Graduate Coordinator after the completion of the **first semester**.

C. Graduate Committee – Curriculum Review

The background of students enrolling in the Food Science and Technology Department can be very diverse. Each student may require specific coursework to meet the Departmental requirements for graduation. Students select courses after consultation with their Major Advisor. The courses selected for the Graduate Plan of Study must be approved by both the student's Graduate Advisory Committee and a representative of the Department Graduate Committee. A list of FST graduate courses is provided in Appendix D.

D. Course Enrollment

The student will be expected to meet with his/her Major Advisor before the beginning of classes to tentatively outline the courses to be taken throughout his/her degree program. This selection of courses will be based on the student's specific interests and on the recommendation specified in C above. Students may not enroll in more than 15 credit hours without permission from the FST graduate committee, not the student's advisory committee. Students are responsible for enrolling in classes online through HokieSpa. All new students must enroll in the FST 5054 Graduate Professionalism in Food Science course in the Fall semester of their first year in the FST graduate program, (for continuing students MS→PhD, Graduate Professionalism in Food Science is not required). This course will facilitate the student's initial progress toward a degree.

E. Motor Vehicles and Parking (1-3200)

All students must register their motor vehicles with Virginia Tech Parking Services (located at 505 Beamer Way) or online. Students should register their vehicles during the first week of the semester. To receive a parking tag you must have a

motor vehicle registration, valid driver's license, and a student ID card. Students are not allowed to park in the Food Science Building parking lot; ticketing will be strictly enforced. Commuting students must use the designated commuter parking lots. The Visitor Center (925 Prices Fork Road) provides a pamphlet on the traffic and parking regulations.

VI. DEGREE REQUIREMENTS

A. Graduate School (1-4669)
All degree programs must conform to the requirements of the Graduate School as described in the Graduate Catalog and the Graduate School Policies and Procedures Manual. In addition, candidates for the M.S. and Ph.D. degrees must meet the following requirements:

The Department offers a M.S. in Life Sciences (research thesis required) and a Ph.D., which is typically reserved for those with a completed M.S. degree. Students with a B.S. degree with interest in a Ph.D. should initially enter a M.S. program. An accelerated program into the Ph.D. is possible for those exceptional students who meet the requirements outlined in Appendix M.

B. Departmental - **Master of Science in Life Sciences**

1. Thesis - An original research project thesis is required.

2. Qualifying Examination - A qualifying examination is not required.

3. Advisory Committee –
   - The Committee Chairman/Major Advisor must be a full-time faculty affiliated with the Department of Food Science and Technology.
   - The student and the Major Advisor will select two additional members of the Committee, to be approved by the Department Head.
   - The Committee shall have a majority of full-time faculty or research professors in the FST Department and may have member(s) from another academic department. Adjunct faculty and other professional scientists from outside the university may serve as regular committee members with the approval of the Department Head. A Research Scientist or a Research Associate holding a Ph.D. degree may serve on the Advisory Committee as a fourth member.
   - The student must personally confirm with each Committee member their willingness to serve on the Committee.
   - The student should actively seek the advice of the Committee members and use this Committee in a truly advisory capacity.

4. Course Requirements and Plan of Study - A proposed Plan of Study will be developed by the student, Major Advisor, and student's Advisory Committee. The Plan of Study must comply with the requirements listed in the Graduate School Policies and Procedures Manual and with Departmental degree requirements. The Plan of Study should complement the student’s research program so the final plan of study should not be submitted before the student’s project is selected. The Plan of

Study should be completed by the end of the student's **second semester** and no later than the end of the 1st year.

The student is responsible for developing, submitting, and tracking the progress of the approval of their Plan of Study. However, this should be done in consultation with the Major Advisor and Advisory Committee. See Appendix E for the plan of study form.

The student's Advisory Committee will be expected to meet at least once to review the student's proposed Plan of Study. This meeting typically occurs early in the second semester. The Plan of Study form must be signed by all the members on the student's Advisory Committee before being submitted to the Department Head. Use the following procedure for submitting a Plan of Study for evaluation and approval:

a. Student should prepare Plan of Study, confirming course numbers, titles and semester are correct before submitting to the advisory committee.

b. The proposed Plan of Study is submitted to the Advisory Committee for review and signatures. Plan of study form for M.S. students is available in Appendix E.

c. The proposed Plan of Study is submitted to the Staff Graduate Coordinator.

d. The graduate coordinator will enter the Plan of Study on the Virginia Tech Banner system to be approved by the Graduate School.

5. Research Proposal - Prior to the completion of the first year of graduate study, the student will prepare a research proposal (see Appendix G) for evaluation and approval by the student's Advisory Committee. The proposal will be presented at a scheduled meeting of the student's Advisory Committee. **The research proposal must be submitted to the Advisory Committee at least seven days prior to the Advisory Committee meeting.** Following review from the student's Advisory Committee, a final copy should be given to the Department Head Secretary in Room 22, and placed in the student's academic file.

6. Seminar - Every student will present a seminar (FST 5004) each year of residence. For example, an M.S. student completing degree requirements in two years will present two seminars for credit and one thesis defense seminar. All students are expected to attend seminar even if they are not enrolled for credit. See Appendix H for a detailed discussion of the Department's seminar policy.

7. Teaching Assignments - Traditionally, the FST Department assigns every graduate student who receives an assistantship to help with at least one lecture or lab course each year. Since the number of graduate students and FST courses varies each semester, there may be situations where a graduate student assists with one course each semester. Students who receive a Graduate **Research** Assistantship will be asked to assist with teaching a course/lab less often, on average, than those who receive a Graduate **Teaching** Assistantship. The faculty member of the course assigned will work with the student to ensure that the student learns the various aspects of the teaching process. This should include observation of the student's teaching in the classroom in order to provide constructive criticism.

All teaching assignments are made by a subcommittee of the FST Graduate Committee and approved by the Department Head. Situations where a student believes that the time commitments or scheduling of teaching assignment activities are negatively impacting their research or other scholar activity should be discussed with the course instructor, faculty advisor and/or Graduate Program Director or Department Head.

8. Checklist - All students should use the checklist (Appendix I1) to ensure important milestones for your first semester and subsequent semesters are completed in a timely fashion.

9. Evaluation Report - All students will submit a semester evaluation report at the completion of each academic term (December 15 for fall semester activities; May 15 for spring semester) (see Appendix J). Feedback and comments regarding the student's progress should be collected from the advisor and committee members at an Advisory Committee meeting. The completed progress report is to be signed by the Major Advisor (Chair) and at least one committee member and will then be sent to the graduate coordinator. The progress report keeps the Department Head informed of the progress of each student. The Graduate Committee will evaluate the student's progress toward their degree annually. The Department Head will maintain a progress check sheet for each student. If at any time a student needs to know his/her status, the progress check sheet can be viewed. In the event that the evaluation report is not submitted on time, the Department Head may request the Graduate School to withdraw that student from active enrollment.

Graduate student summer funding and awards will be decided based on the progress toward degree, service and professional activities noted on the progress reports. If a meeting of the advisory committee cannot be held then comments from major advisor and at least one other committee member should be added.

10. Thesis and Final Examination - The thesis will be written under the supervision of the Major Advisor. The thesis shall be formatted to meet the requirements of the Graduate School. Final Examinations and Preliminary Examinations must be scheduled with and approved by the Graduate School. These examinations must be requested at least two weeks in advance through the electronic scheduling website: https://ess.graduateschool.vt.edu/pages/login.php.

- It is the student's responsibility to understand all dates, ETD format and other requirements of the Graduate School.
- An attributions page describing the role of each author must be included.
- The Department recommends that the research portion of the thesis shall be written in manuscript form, following the guidelines of a primary research journal in the area of food science. Examples of appropriate research journals to be considered for manuscript style include Applied and Environmental Microbiology, Journal of Food Science, Journal of Food Protection, Journal of Dairy Science, and Journal of Agriculture and Food Chemistry.
- Each research manuscript shall be titled as a separate Chapter within the thesis.
- In general, each manuscript will include an abstract, introduction, materials and methods, results and discussion, conclusions, and references. The body matter of the thesis document shall be modified to accommodate the research.

- If the research portion is contained within one manuscript, including an introduction, then the abstract should be provided at the beginning of the thesis.
- If two or more research manuscripts are included within the thesis, then an Abstract and Introduction addressing the entire scope of the thesis research should be included before the Review of Literature.
- A Conclusion or Summary of the entire dissertation may also be included if appropriate.
- Graduate students and their advisors are required to verify through the software *iThenticate* that their electronic thesis (ETD) is appropriately written and cited. Students are encouraged to use *iThenticate* to review drafts of their ETDs prior to final submission. See: https://vtnews.vt.edu/notices/ithenticate-graduateschool.html and https://graduateschool.vt.edu/faculty-and-staff-resources/ithenticate.html.
  Defense of the thesis will be administered by the student's Examination Committee, which is typically the Advisory Committee.
- Committee members must be given a copy of the final draft of the thesis **at least three weeks before the examination**. At this time, students must also provide a summary report for their thesis review using the *iThenticate* anti-plagarism software.
- The thesis will be evaluated by the Examination Committee for completion of proposed objectives, scientific merit, clarity of thought, thoroughness of presentation, and grammar. Evaluation of the thesis will be made prior to and during the final examination. Further examination of the thesis can be made after the final examination and prior to submission of the final copy to the Graduate School.

The final examination will be supervised by the Major Advisor and administered by the student's Examination Committee. It shall include a scheduled public seminar on the thesis work, to be arranged by the student and Major Advisor and presented to the faculty and graduate students of the Department, and visitors from other university departments. The open seminar will be followed by an oral examination with attendance restricted to faculty and the student. The oral examination will include questions on the thesis, course work and general knowledge of food science and related fields. [If the final approved thesis is submitted to the Graduate School more than eight weeks after the final examination then the final examination must be retaken].

It is the responsibility of the student to ensure that all other degree requirements are met prior to scheduling the final examination. The student is responsible for the costs associated with writing and reproducing the thesis. The student must submit their thesis electronically within 2 weeks of the defense date for final approval by the Graduate School. Directions on how to do this can be found at http://etd.vt.edu/, but the submission site is https://ess.graduateschool.vt.edu/pages/login.php. Upon submission of the electronic thesis the student claims copyright to the thesis.

11. Publication of Thesis – It is expected that the research from the M.S. thesis is published in a peer reviewed journal. Students are expected to have all papers from their thesis prepared for submission to appropriate journals prior to final acceptance of the thesis.

12. Final Term Check-Out - As part of completion of the student's program and departure from the Department, the student will have an exit interview with the department head, or another representative from the department. They must also return any university department keys, clean out their desk and lab space, and turn in all laboratory notebooks and electronic documentation related to research or other activities advised by their Major Advisor. The Major Advisor is to verify that all has been completed.

C. Departmental - **Doctor of Philosophy**

1. Dissertation - An original research project dissertation is required.

2. Qualifying Examination - A qualifying examination is not required for students who have an M.S. degree, but may be required for students who have only a Bachelor's degree. In the latter case, the research proposal submission seminar and research proposal may be evaluated in lieu of a qualifying exam.

3. Advisory Committee –
   - The Committee Chairman/Major Advisor must be a full-time faculty affiliated with the Department of Food Science and Technology.
   - The student and the Major Advisor will select two additional members of the Committee from Department of Food Science and Technology.
   - An additional Committee member will be selected from another academic department.
   - All Committee members must possess a Ph.D.
   - All Committee members will be approved by the Department Head.
   - Adjunct faculty and other professional scientists from outside the university may serve as regular committee members with the approval of the Department Head and Graduate School. A Research Scientist or a Research Associate holding a Ph.D. degree may serve on the Advisory Committee as a fifth member.
   - The student must personally confirm with each Committee member their willingness to serve on the Committee.
   - The student should actively seek the advice of the Committee members and use this Committee in a truly advisory capacity.

4. Course Requirements and Plan of Study – A proposed Plan of Study will be developed by the student, Major Advisor, and student's Advisory Committee. The Plan of Study must comply with the requirements listed in the Graduate School Policies and Procedures Manual and with Departmental degree requirements. The Plan of Study should complement the student's research program so the final plan of study should not be submitted before the student's project is selected. The Plan of Study should be completed by the end of the student's second semester and no later than the end of the 1st year.

The student is responsible for developing, submitting, and tracking the progress of the approval of their Plan of Study. However, this should be done in consultation with the Major Advisor and Advisory Committee. It is the student's responsibility to confirm course number, title and semester before submitting forms to the advisory

committee. The student's Advisory Committee will be expected to meet at least once to review the student's proposed Plan of Study. This meeting typically occurs early in the second semester. The Plan of Study form must be signed by all the members on the student's advisory committee, and the Department Head, before being submitted to the Staff Graduate Coordinator.

The following procedure is used for submitting a Plan of Study for Departmental evaluation and approval.

a. The proposed Plan of Study (Plan of Study General Work Sheet, Appendix F) is submitted to the student's Advisory Committee for signatures.

b. The proposed Plan of Study (Plan of Study General Work Sheet, Appendix F) is submitted to the Staff Graduate Coordinator.

c. The graduate coordinator will enter the Plan of Study on the Virginia Tech Banner system to be approved by the Graduate School.

5. Research Proposal - **Prior to the completion of the first year of graduate study**, the student will prepare a research proposal (see Appendix G) for evaluation and approval by the student's Advisory Committee.

- The student should work with their Major Advisor to develop a written proposal that contains a detailed Introduction, Literature review, Research questions, methods, potential problems and justification sections.
- **The research proposal must be submitted to the Advisory Committee at least seven days prior to the Advisory Committee meeting.**
- The proposal will be presented as a PowerPoint or keynote seminar at a scheduled meeting of the student's Advisory Committee.
- Students should be prepared to answer questions about methodology, hypotheses and general knowledge relating to the students proposal.
- Ph.D. students will incorporate revisions from each Committee member for approval prior to proceeding with the project. This revised version serves as your contract with your Committee.

6. Seminar - Every student will present a seminar (FST 5004) each year of residence. For example, a Ph.D. student completing degree requirements in three years will present three seminars for credit, one proposal defense seminar and one dissertation defense seminar. All students are expected to attend seminar even if they are not enrolled for credit. See Appendix H for a detailed discussion of the Department's seminar policy.

7. Teaching Assignments - Traditionally, the FST Department assigns every graduate student who receives an assistantship to help with at least one lecture or lab course each year. Since the number of graduate students and FST courses varies each semester, there may be situations where a graduate student assists with one course each semester. Students who receive a Graduate **Research** Assistantship will be asked to assist with teaching a course/lab less often, on average, than those who receive a Graduate **Teaching** Assistantship. The faculty member of the course assigned will work with the student to ensure that the student

learns the various aspects of the teaching process. This should include observation of the student's teaching in the classroom in order to provide constructive criticism. All teaching assignments are made by a subcommittee of the FST Graduate Committee and approved by the Department Head. Situations where a student believes that the time commitments or scheduling of teaching assignment activities are negatively impacting their research or other scholar activity should be discussed with the course instructor, faculty advisor and/or Graduate Program Director or Department Head.

8. Checklist - All students should use the checklist (Appendix I) to ensure important milestones for your first semester and first year are completed.

9. Evaluation Report - All students will submit a semester evaluation report at the completion of each academic term (December 15 for fall semester activities; May 15 for spring semesters) (see Appendix *J*). Feedback and comments regarding the student's progress should be collected from the advisor and committee members at an Advisory Committee meeting. The completed progress report is to be signed by the Major Advisor and at least two committee members and will then be sent to the graduate coordinator. The progress report keeps the Department Head informed of the progress of each student. The Graduate Committee will evaluate the student's progress toward their degree annually. The Department Head will maintain a progress check sheet (Appendix I) for each student. If at any time a student needs to know his/her status, the progress check sheet can be viewed. In the event that the progress report is not submitted on time, the Department Head may request the Graduate School to withdraw that student from active enrollment.

Graduate student summer funding and awards will be decided based on the progress toward degree, service and professional activities noted on the progress reports. Reports are also useful for organizing professional activities for inclusion on a CV or resume.

10. Preliminary Examination - The preliminary examination consists of a written examination followed by an oral examination. The date and time of the examination will be arranged by the student in consultation with his/her Major Advisor and Advisory Committee. The preliminary examination cannot be scheduled before the student's Plan of Study has been approved by the Graduate School and must be scheduled during a semester when the student is enrolled. The format typically for each examination will be determined by the student's Major Advisor and Advisory Committee. Preliminary Examinations must be scheduled with and approved by the Graduate School. These examinations must be requested at least two weeks in advance through the electronic scheduling website: https://ess.graduateschool.vt.edu/pages/login.php.

- The preliminary examination is given to all Ph.D. students within the 2nd year of the Ph.D. program, after most of their course work is completed
- The exam must be taken at least 6 months before the defense of the dissertation.
- An expected date (semester/year) for completing the preliminary examination must be submitted with the Plan of Study for approval by the Graduate School.

- The examination will be administered and evaluated by the student's Advisory Committee.
- Questions for this examination will be on course work, and on general knowledge and understanding basic principles of food science and technology and related fields. The student will also be evaluated on his/her research ability.
- Request to schedule the examination must be received by the Graduate School at least two weeks prior to the examination date.
- The title of Ph.D. Candidate will be reserved for those individuals accepted into the doctorate program who have successfully completed their preliminary examination. An individual that has been accepted into the doctorate program, but has not completed his/her preliminary examination will be considered a Ph.D. Student.

11. Dissertation and Final Examination - The dissertation will be written under the supervision of the Major Advisor. Final Examinations must be scheduled with and approved by the Graduate School. These examinations must be requested at least two weeks in advance through the electronic scheduling website: https://ess.graduateschool.vt.edu/pages/login.php.

- The dissertation shall be formatted to meet the requirements of the Graduate School.
- The Department recommends that the research portion of the dissertation shall be written in manuscript form, following the guidelines of a primary research journal in the area of food science. Examples of appropriate research journals to be considered for manuscript style include Applied and Environmental Microbiology, Journal of Food Science, Journal of Food Protection, Journal of Dairy Science, and Journal of Agriculture and Food Chemistry.
- Each research manuscript shall be titled as a separate Chapter within the dissertation.
- In general, each manuscript will include an abstract, introduction, materials and methods, results and discussion, conclusions, and references. The body matter of the dissertation shall be modified to accommodate the research. It is expected that a dissertation will include two or more research manuscripts within the body matter. Therefore, an abstract and introduction addressing the entire scope of the dissertation research should be included before the review of literature. A conclusion or summary of the entire dissertation may also be included if appropriate.
- Graduate students and their advisors are required to verify through the software *iThenticate* that their electronic dissertation (ETD) is appropriately written and cited. Students are encouraged to use *iThenticate* to review drafts of their ETDs prior to final submission. See: https://vtnews.vt.edu/notices/ithenticate-graduateschool.html and https://graduateschool.vt.edu/faculty-and-staff-resources/ithenticate.html.

- Defense of the dissertation will be administered by the student's Examination Committee. This committee is typically the Advisory Committee.

- Committee members must be given a typed copy of the final draft of the dissertation **at least three weeks before the examination**. At this time, students must also provide a summary report for their thesis review using the *iThenticate* anti-plagarism software.
- At least one chapter of a dissertation must be published or accepted for publication **before** a defense can be scheduled.
- The dissertation will be evaluated by the Examination Committee for completion of proposed objectives, scientific merit, clarity of thought, thoroughness of presentation, and grammar. Evaluation of the dissertation will be made prior to and during the final examination. Further examination of the dissertation can be made after the final examination and prior to submission of the final copy to the Graduate School. Defense of the dissertation will be administered by the student's Examination Committee.
- Evaluation of the dissertation will be made prior to and during the final examination. Further evaluation of the dissertation can be made after the final examination and prior to submission of the final copy to the Graduate School.

The final examination will be supervised by the Major Advisor and administered by the student's Examination Committee. It shall consist of a scheduled **public seminar** on the dissertation work arranged by the student and Major Advisor and presented to the faculty and graduate students of the department. The open seminar will be followed by an oral examination with attendance restricted to faculty and the student. The oral examination will consist primarily of questions on the subject of the dissertation but it may also include questions on the student's general knowledge of food science and related fields. [If the final approved dissertation is submitted to the Graduate School more than eight weeks after the final examination then the final examination must be retaken].

It is the responsibility of the student to ensure that all other degree requirements are met prior to scheduling the final examination. The student is responsible for the costs associated with writing and reproducing the thesis. The student must submit their thesis electronically within 2 weeks of the defense date for final approval by the Graduate School. Directions on how to do this can be found at http://etd.vt.edu/, but the submission site is https://ess.graduateschool.vt.edu/pages/login.php. Upon submission of the electronic dissertation the student claims copyright to the dissertation.

12. Publication of the Dissertation - The research from the Ph.D. dissertation will be published in refereed scientific journals. Students are expected to have all papers from their dissertation prepared for submission to appropriate journals prior to final acceptance of the dissertation. To help maintain quality control for a Ph.D. degree, at least one journal article must be peer reviewed, i.e. one article must be accepted for publication prior to the dissertation defense. Target: at least 3 manuscripts with at least one accepted for publication before dissertation defense.

13. Final Term Check-Out - As part of completion of the student's program and departure from the Department, the student will have an exit interview with the department head, or another representative from the department. They must also return any university department keys, clean out their desk and lab space, and turn

in all laboratory notebooks and electronic documentation related to research or other activities advised by their Major Advisor. The Major Advisor is to verify that all has been completed.

VII. APPEALS AND POLICY EXCLUSIONS

A. Appeals

All appeals are to be submitted in writing to the Department Head. The Department Head will submit the appeal to the Graduate Committee for further consideration and recommendation. The final decision on appeals is the responsibility of the Department Head.

Items requiring appeal to the Graduate Committee include but are not limited to:

- Enrollment in more than 15 hours of course credit
- BS→Ph.D.
- Substitutions of alternate seminar opportunities

B. Policy Exclusions

Policy exclusions can be made by written request to the Department Head. The Department Head will submit requests to the Graduate Committee for recommended action. The final decision for policy exclusion is the responsibility of the Department Head.

VIII. EQUIPMENT USAGE, OFFICE, AND LAB SPACE

A. Building Keys

Doors to both the FST building and HABB1 are locked after hours and on weekends. Keys for the building and laboratories are obtained from the Departmental Key Coordinator on approval of the Major Advisor and the Department Head. All doors are to be locked if the room is not in use during off-hours. All keys MUST be returned to the department PRIOR to your departure from the department or there will be a HOLD placed on your account (please see checkout sheet). If you lose your keys there will be a $200 replacement fee.

Linda Granata (1-9579; Room 25D FST) manages the key requests and returns for the FST Building and Roman (Rusty) Rustia (1-1864; Room 135 HABB1) manages the key requests and returns for HABB1. Students must have completed the FST training requirements for Lab Safety as stipulated by the Department and Major Advisor before keys will be issued (Appendix L).

B. Space

All graduate students will be assigned an office space by the Department Head. The office location is selected to maximize convenience of the graduate student to their research laboratory, advisor and/or interaction with fellow graduate students. Permission to change offices must be approved by the Department Head before a change can be made.

C. Computer Usage

Each student is responsible for providing and/or accessing computing equipment (e.g., a PC) and software to meet any requirements for courses, teaching assignments, and the expectations of their Advisory Committee. However, equipment may be loaned to a student by their Major Advisor or by the Department. Departmental PCs are not to be used by the graduate students without the permission of the faculty or staff member in charge of the machine. Computer assistance can be obtained from Joe Boling (1-6264). University software use policies should be followed by all students at all times.

D. Photocopiers and Laser Printers

The Main Office photocopier and the photocopier in the copy/mailroom in HABB1 room 403 can be used by graduate students for FST related copying/printing with prior approval from the student's major advisor. Instructions on how to configure your computer to print to the photocopier can be found at http://www.fst.vt.edu/graduate/current_students.html

Larger print jobs (between 100-200 pages) should be printed outside of normal work hours. All personal copies are 10 cents per copy and funds should be paid in FST Room 26. Virginia Tech's Printing Services should be used for large copy orders (> 200 pages). Please see the department head secretary in Room 22 or bookkeeper in Room 26.

E. Conference Phone

There is access to a telephone for conference calling in team room 401G in HABB1.

F. Travel and Use of University and Departmental Vehicles

Requests for use of University vehicles (from the Fleet Services) require permission of the student's Major Advisor. All drivers of state vehicles must be approved and registered with fleet services (http://www.fleetservices.vt.edu/). In all cases that a University vehicle is to be used, a travel authorization form must be filled out (available online, see: http://www.co.vt.edu/Procedures/p20335a.html) and signed by the Department Head before the trip. University vehicles are not for personal use.

The Department also has a utility van which can be checked out. All requests must go through Terry Rakestraw (FST 22). The Major Advisor's authorization must be obtained before this vehicle can be used. A Departmental charge account number is to be indicated on the vehicle log when it is signed out.

G. Mailboxes

All students will be assigned a mailbox either outside the Main Office (FST building) or in the copy/mailroom in HABB1. This mailbox will be used by the Main Office and the University for communication purposes. Students are requested to check their mailboxes at least three times a week.

H. Supplies for Research

All supplies ordered are ordered through our HokieMart ordering system (www.hokiemart.vt.edu). Students wishing to order supplies must have prior approval from the Major Advisor to be granted responsibility for ordering and must be trained and registered in the HokieMart system. The Major Advisor should be consulted on all current procedures for ordering supplies and equipment. When ordered and supplies are received, the packing slip is to be checked to ensure the

materials ordered are included in the shipment. Packing slips MUST BE UPLOADED to HokieMart by the purchaser or receiver. Only individuals with approved access to HokieMart ordering system may place and receive orders.

I. Work Space and Facilities

Work space for a research project is to be arranged through the Major Advisor. Most research facilities are available to graduate students. However, before a student uses research facilities for the first time, the student must complete all related laboratory safety training. Additionally, the individual in charge of the facility must be contacted to assure availability of these resources. If the student is unfamiliar with the equipment, it will be necessary for the student to obtain this training before the equipment can be used. Care, safety, and the utmost consideration for other individuals and the facilities is to be used at all times. In most cases, arrangements will have to be made beforehand to make sure that the equipment to be used is available. Most labs have a sign-out sheet to reserve their use for a given date and time. There are several research support facilities (electron microscope, ultracentrifuge, GC-Mass Spectrometer, gene splicer, glass blowing shop, etc.) that are available for use University-wide. Students should contact their Major Advisor about the availability of these facilities.

All students must have completed the Research Training Form and all laboratory safety training required by the Department and Major Advisor as well as special training needed for specific laboratory spaces before they can use the labs.

J. University Laboratory Facilities

There are a number of different laboratories at the University available for different types of analysis.

K. Safety

Before using any facilities, students must become familiar with the safety procedures that apply to the area. During their first fall semester of study, a 1-credit hour course (FST 5054 Graduate Professionalism in Food Science) will be required for incoming students from the fall and previous spring. One of the topics this orientation will cover are safety procedures and protocols relative to our facility (Appendix L). As part of this, students will complete health and safety training, IRB training and/or IACUC certifications. Students should provide certificates of completion or the appropriate documentation for each of these trainings to the course instructor and to Kim Waterman (microbiology) (1-8678; kwater@vt.edu) or Melissa Wright (chemistry) (1-2025; mswright@vt.edu).

The faculty member in charge of specific research spaces is responsible for monitoring all individuals using the laboratory facilities. All accidents are to be reported to the student's Major Advisor and to the faculty member responsible for the designated area.

The University Health and Safety Policy is intended to help prevent accidents, illnesses and injuries; increase safety awareness; meet requirements of environmental, occupational health, and safety laws and regulations; reduce institutional liability; and establish safety responsibilities for members of the university community and visitors to university-owned property, including state-

owned property associated with Virginia Tech. The University Health and Safety Policy (No. 1005) can be found on the web at: http://www.policies.vt.edu/1005.pdf

Student responsibilities include:

- Compliance with all university health and safety programs
- Attendance at mandatory Department health and safety training programs
- Informing your supervisor and Department Safety Committee Head of any safety hazards in the classroom, laboratory or other workplace

L. Telephones

If University business requires a student to make a long distance call, the student's Major Advisor will need to make arrangements.

M. Audiovisual Equipment

Classrooms FST 27 and FST 132 are equipped with computer projection units. The seminar room (#108) in HABB1 and its projection equipment may be used when the room is unscheduled. Most FST faculty and staff can reserve HABB1 108, 106 and 208 upon request.

IX. LIBRARIES

The University Libraries consist of a main collection in the Carol M. Newman Library, an Architecture branch, a Geology branch, and the Veterinary library. The Newman Library is organized by broad subject disciplines. The Science and Technology section is located on floors 4 and 5. A unique feature of the University Library is an on-line computer catalog system. All students are encouraged to become acquainted with University Libraries.

Inga Haugen is the College of Agriculture and Life Sciences (CALS) librarian. Her contact information is ihaugen@vt.edu.

X. GRADUATE RESEARCH AND TEACHING APPOINTMENTS

Graduate teaching and research appointments are administered both by the Department Head and by individual faculty members. Departmental appointments and fee waivers are awarded by the Department Head on a case-by-case basis based on each student's background and academic achievements. The Graduate Committee will make a recommendation to the Department Head, for each application reviewed, as to whether or not the applicant should be considered for acceptance and/or financial assistance. All non-U.S. students must provide evidence of financial support for the duration of their Plan of Study (M.S. degree for 2 years, Ph.D. for 3 years) if they are not awarded an assistantship. Graduate research appointments that are part of a faculty member's sponsored program are the responsibility of the faculty member. All students on assistantship in the Department are expected to aid in the teaching of departmental courses, typically once or twice per year of their resident study. Whether or not a student is considered appropriate for the teaching of a class is solely the decision of the faculty member in charge of the class and the Department Head.

Students offered a graduate research or teaching assistantship must sign a contract (Graduate Assistantship Agreement) describing the duration, percent appointment, monthly salary rate, and average hours of work time per week. Students receiving a graduate stipend (half-time appointment) are expected to work an average of 20 work hours per week. The specific work assignments will be defined by the Major Advisor and the Department Head. **This work effort is in addition to the work toward the thesis or dissertation research.**

Unless specified otherwise in the assistantship agreement contract, graduate students on full assistantships are not prohibited from seeking additional employment. Students should consult with their academic advisor and/or assistantship supervisor as applicable regarding the fulfillment of their assistantship and graduate study responsibilities. Students must notify the Graduate School about any additional employment agreement, including the period of employment, name and contact of employer, and job title or short description of duties.

Students on a **12 month** assistantship are obligated to work throughout the entire year and may receive 10 work days per calendar year of vacation (with pre-approval from their advisor and Department Head), plus seven State declared holidays (and any additional days/hours declared as holidays for all state employees by the Governor of Virginia).

- New Year's Day
- Memorial Day
- Independence Day
- Thanksgiving Eve
- Thanksgiving Day
- Christmas Eve
- Christmas Day

Students on a **9-month** assistantship are obligated to work throughout the entire duration of their contract (typically August 10 – May 9). These students may receive **10 work days per calendar year** of vacation (with approval from their advisor), plus the above mentioned state declared holidays that fall within the contractual period.

Students are expected to work during Spring Break week unless prior arrangements have been made with their major advisor.

Summer funding for students is variable. Some students take off campus internships during the summer months, and other remain on campus and are paid from various sources. Summer funding is not guaranteed and is awarded on a case-by-case basis.

All students, both 9 and 12 month appointments, must submit leave requests (Appendix K) authorized by their major advisor to the Staff Graduate Coordinator.

Assistantships are renewed on an annual basis based on availability of funding and academic progress/performance. **The stipend level may change depending on the source of the funding.** For example, students beginning study on a 1-year grant which provides a higher level of funding, may drop to the average departmental pay rate in the second year (when the funding from grant is complete).

Students who are not on an assistantship are encouraged to participate in departmental programs and other activities in addition to degree requirements but they are not obligated to do so. **All Graduate students regardless of assistantship status must meet the time commitment needed to reach the research expectations of the student's Advisory Committee.**

XI. UNIVERSITY AND PROFESSIONAL GRADUATE STUDENT ORGANIZATIONS

A. Food Science Club

The Virginia Tech Food Science Club (http://www.fst.vt.edu/fsclub/index.html) is the local chapter of the Institute of Food Technologists Student Association (http://www.ift.org/iftsa.index.php) and is based in the Food Science and Technology Department. It is a non-profit student organization dedicated to promoting food science and technology through education and service. The mission of the Virginia Tech Food Science Club is to foster a close relationship among students and faculty at Virginia Tech, to encourage leadership, and to acquaint students with the scope of Food Science and Technology. The Club promotes the professional growth of students in Food Science and Technology through involvement in the Institute of Food Technologists. Membership in the Food Science Club is an excellent opportunity for the exchange of ideas and development of common professional and other interests. The Food Science Club is supported through Club-driven fund raising activities throughout the year. The Food Science Club welcomes the participation of undergraduate and graduate students in Food Science and Technology and related disciplines.

B. Graduate Student Assembly and Interdisciplinary Research Honor Society

All graduate students are members of the Graduate Student Assembly (GSA), which is the only University-wide organization for graduate students. The GSA provides representation of graduate student opinions to policy forming bodies within the Virginia Tech governance system. In addition, it is the responsibility of the GSA to respond to the suggestions and needs of its members. The GSA meets each month. The Department has two delegates who represent the needs of the graduate students within the Department. These delegates are elected by the Departmental graduate student body at the beginning of each academic year. Another graduate organization of value is the Interdisciplinary Research Honor Society, Iota Delta Rho (IDR) (www.idrsociety.org).

C. Professional Associations

The Institute of Food Technologists (IFT) is a national association of food scientists and technologists. Student members of the IFT receive Food Technology and/or the Journal of Food Science. Both publications are excellent sources of information. The Journal of Food Science is IFT's main publication of refereed scientific articles. Food Technology is a combination of technical information and information concerning the IFT. Students are strongly encouraged to become student members of the Institute of Food Technologists and become active members at the Section level (DC Section IFT) and the National level. Membership applications may be obtained from the IFT website. There are also discipline-related professional associations, for example, International Association for Food Protection, American Meat Science Association, American Dairy Science Association, American Society

for Microbiology, that students are encouraged to join. Phi Tau Sigma is the National Honor Society of IFT. Nomination into the Virginia Tech Chapter is a recognition of high professional standards.

XII. SPECIAL SERVICES

A. Health Services (1-6444)
A non-refundable fee for medical care provided by the Schiffert Health Center is paid by all students in residence paying full University fees. The fee is optional for part-time students. This fee is not to be confused with health insurance. Health insurance, if desired, is the responsibility of the student. The Benefits Office in Southgate Center can be contacted with regard to different health insurance options available.

B. Career Services (1-6241)
The Career Services in the Career Services Building is available to assist students in obtaining full time, part-time, or summer employment. Career Services will also assist students in developing a resume, and on how to present him or herself during a job interview.

XIII. CHECK-OUT POLICIES

The final graduation certification will depend on the student's completion of all the Departmental requirements. All keys must be returned, all assigned office and research space must be cleaned and made ready for the next student, all borrowed books must be returned to the owner, copies of the thesis or dissertation must be given to all those requiring one, (**one is required by the department**) and a forwarding address must be left with the Head Secretary. Copies of all laboratory data, notebooks, etc. should be provided to the Major Advisor.

XIV. MISCELLANEOUS INFORMATION

A. Graduate Honor System
All students are expected to abide by the University Honor System. The Graduate Honor Code establishes a standard of academic integrity. The code demands a firm adherence to a set of values and is founded on the concept of honesty with respect to the intellectual efforts of oneself and others.

Compliance with the Graduate Honor Code requires that all graduate students exercise honesty and ethical behavior in all their academic pursuits here at Virginia Tech, whether these undertakings pertain to study, course work, research, extension, or teaching. For more information, visit: http://ghs.grads.vt.edu/.

Graduate students interested can volunteer for membership and can serve as student members on honor code violations panels and examine cases.

B. Financial Support

Assistantships are offered to students on a competitive basis. Tuition will be paid for all students on full-time assistantships. Students will still be responsible for a portion of student fees. All graduate students receiving an assistantship are required to sign an agreement that outlines expectations, amount of assistantship and dates of support. Graduate students who are not awarded an assistantship through the Graduate School may qualify for employment under the Federal College Work-Study Program depending on their financial status. Application forms and additional information can be obtained from the Office of Financial Aid. Students not eligible for employment under the need-based College Work-Study Program may apply for student wage employment. Further information regarding financial aid and assistantships may be obtained from the Graduate Catalog or by contacting the department.

C. Scholarships and Fellowships

A number of national and University scholarships and fellowships are available.

1. IFT - Each year the Institute of Food Technologists awards several scholarships to both graduate and undergraduate students. The scholarships are highly competitive and require a research proposal.

2. University - The University awards several scholarships and fellowships - the Cunningham Dissertation Year Fellowship, Cunningham Dissertation/Thesis Summer Fellowship, State Instructional Fee Scholarship, and others. For more information about University-wide scholarships and fellowships contact the University Financial Aid Office.

3. Departmental - Tuition scholarships (waivers) and graduate stipends may be available through the Department.

4. Industry - Industry supported scholarships and graduate stipends may be available from industry through the Department.

D. Travel Support

Students are encouraged to attend and present scientific research at regional and national meetings. Travel grants are available through the Graduate Student Assembly for students presenting a poster or oral presentation at a scientific meeting. Applications must be filed by the GSA deadline one semester prior to travel. IFT also offers support in the form of student monitor positions to students wishing to attend the national meeting. Applications must be completed early in the spring semester.

All students conducting travel as a representative of the department must follow strict state and federal laws governing reimbursement of travel expenses. You are required to understand and follow the rules outlined on the controllers website: http://www.co.vt.edu/accounting_operations/accounting_services/Travel/index.html. Travel funds are very limited and are not to be abused by student travelers. For example taxis to/from convention center during a meeting are acceptable forms of transportation ONLY if a shuttle or other form of transportation is not available. Travel support is a privilege that will be removed if abused.

XV. PRINCIPLES OF COMMUNITY STATEMENT

Virginia Tech is a public land-grant university, committed to teaching and learning, research, and outreach to the Commonwealth of Virginia, the nation, and the world community. Learning from the experiences that shape Virginia Tech as an institution, we acknowledge those aspects of our legacy that reflected bias and exclusion. Therefore, we adopt and practice the following principles as fundamental to our on-going efforts to increase access and inclusion and to create a community that nurtures learning and growth for all of its members:

- ***We affirm*** the inherent dignity and value of every person and strive to maintain a climate for work and learning based on mutual respect and understanding.
- ***We affirm*** the right of each person to express thoughts and opinions freely. We encourage open expression within a climate of civility, sensitivity, and mutual respect.
- ***We affirm*** the value of human diversity because it enriches our lives and the University. We acknowledge and respect our differences while affirming our common humanity.
- ***We reject*** all forms of prejudice and discrimination, including those based on age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, and veteran status. We take individual and collective responsibility for helping to eliminate bias and discrimination and for increasing our own understanding of these issues through education, training, and interaction with others.
- ***We pledge*** our collective commitment to these principles in the spirit of the Virginia Tech motto of Ut Prosim *(That I May Serve)*.

Appendix A

Graduate Student Expectations for Successful Graduate Study

Graduate Students are required to:

1. Adhere to the Graduate School's expectations of graduate study available at http://www.grads.vt.edu/academics/expectations/index.html

2. Conduct themselves in a mature, professional, courteous manner toward students, staff and faculty regardless of their race, gender, religion, sexual orientation, or national origin. Graduate assistants should act in accordance with the standards outlined by the Virginia Tech Principles of Community and Graduate Honor code. (http://www.multicultural.vt.edu/pdf/Virginia_Tech_Principles_of_Community.pdf), (http://ghs.grads.vt.edu/).

3. Take primary responsibility to inform themselves about specific regulations and policies governing their graduate studies at the department and Graduate School levels, including ensuring that they meet departmental and graduate school deadlines and laboratory safety.

4. Manage time effectively for maximum professional development as well as personal health and wellbeing, balance competing demands such as being a student, a graduate assistant, a parent, a spouse, a caregiver, etc.

5. Approve all leave (vacation, absences, etc…) through the major professor prior to planning. (Students will not be granted leave during crucial parts of laboratory projects or when it conflicts with assistantship responsibilities.)

   One month minimum notice must be provided for vacation time. Typically, vacation time will not be granted during crucial times of your project (i.e. growing season). **Vacation time will not exceed 10 work days per calendar year**. Additional vacation days may be provided at the discretion of your major professor in acknowledgment of exemplary performance.

   Graduate assistants are expected to be available on all class holidays (fall and spring break, in between semesters) unless they are using vacation time.

   Graduate assistants on assistantships (teaching, research, and extension) will receive the following holidays without prior approval (these do not count as part of your 10 days of vacation):

   - New Year's Day - January 1
   - Martin Luther King Day
   - Memorial Day - Last Monday in May
   - Independence Day - July 4
   - Labor Day
   - Thanksgiving Day - Fourth Thursday in November
   - The day after Thanksgiving
   - Christmas Eve - December 24
   - Christmas Day – December 25
   - Any additional days declared as holidays for all state employees by the Governor of Virginia

6. Take opportunities to attend professional meetings and meetings in which they are representing the Department or University. These meetings will not be counted as student vacation time. All students should discuss attendance of these meetings with their advisor and receive approval prior to planning to attend. However, money to attend professional meetings is not guaranteed to any student from the department or their advisor.

7. Make adequate progress towards degree.

   Assistantships (teaching, research and Extension) are awarded based on performance (academic and research), funding availability and qualifications. Only one semester of assistantships (research or teaching) will be awarded at a time. Awards of subsequent semesters will be based on performance.

   Funding for research or teaching will not exceed 4 semesters B.S. to M.S., 6 semesters M.S. to Ph.D. and 8 semesters B.S. to Ph.D. Consideration for continued funding after that time period will occur only after receipt of a written proposal requesting an extension.

   To be **eligible** for an assistantship, graduate students must:

   i. Maintain at least a 3.0 grade point average
   ii. Have "regular" admission status
   iii. Satisfy enrollment requirements (12 hrs.) during the academic year
   iv. Make satisfactory progress toward degree as defined by academic department and graduate school
   v. Meet regularly with major professor. All meetings should be scheduled and every effort maintained to keep the appointment.
   vi. Attend all laboratory and FST graduate student meetings as designated by your major professor. You must be excused from meetings in advance, only one excuse per semester will be allowed, regardless of situation.
   vii. All students on assistantship are expected to spend at least 10 or 20 hours a week on laboratory duties or focused on extension work.
      20 hrs.= full assistantship
      10 hrs.= partial assistantship
   viii. Laboratory duties do not include research toward the thesis or dissertation (unless directed to do so by your major professor) and include but are not limited to:
      - Assisting other students and faculty with research and teaching demonstrations.
      - Maintaining cleanliness of your lab and desk space and participate in regularly cleaning of the lab.
      - Assisting major professor with literature searches and proposal development.
      - Laboratory duties do not include assignments or exam preparation for courses in which you are enrolled.
      - Any alterations in lab duties must be approved by your major professor in writing. This includes alterations due to illness and personal situations.
      - Students should plan for 20 hours a week for laboratory duties and a minimum of 20 hours toward research.

8. Complete a teaching assignment as assigned. For successful completion the student must be engaged in the experience and attend all required meetings and classes associated with the teaching assignment. Details of each teaching assignment vary and are managed by the course instructor.

9. Complete performance evaluation (Appendix J) each semester and summer period which are turned into the major professor at the beginning of each semester. The graduate assistant will receive written notification of any infractions that jeopardize continuation of assistantship from the department. The graduate assistant will be expected to work with the major professor to ensure that eligibility may continue. If the student loses an assistantship due to lack of productivity, then the student can be eligible for funding again after one semester once satisfactory work is demonstrated.

10. Produce a written proposal in following guidelines outlined in Appendix G at the end of the second semester. Students will receive written approval of each committee member. This will serve as a contract with your committee.

11. Present a proposal in an oral form.

    Failure to produce an acceptable proposal or presentation will lead to probationary status. Students will receive feedback from committee members. Students will have 2 months to resubmit a proposal and presentation for consideration. Students failing to produce an acceptable proposal after such time will be reassigned to terminal M.S. status.

12. Complete a comprehensive preliminary exam (Ph.D. only) that consists of an oral and written component.

13. Complete degree to acceptable standards:

    Acceptable M.S. thesis must contain at least one publishable journal article.

    An acceptable Ph.D. dissertation must contain at least one published journal article. Stated goal in lieu of requirement: At least three manuscripts with at least one accepted for publication before dissertation defense.

Appendix B

Advisor Expectations for Successful Graduate Student Advising

(as adapted from Guidelines for Good Practice in
Graduate Education, University of Washington)

The faculty advisor is expected to:

1. Interact with students in a professional, civil, and collegial manner in accordance with University policies and relevant laws

2. Impartially evaluate student performance regardless of the student's religion, race, gender, sexual orientation, nationality, or other criteria that are not germane to academic evaluation

3. Promise a reasonable degree of confidentiality in communication with students, taking care not to discuss a student's performance, research results, or behavior with other students

4. Serve on graduate student committees without regard to the race, gender, sexual orientation, or national origin of the graduate student candidate

5. Discuss laboratory, and departmental authorship policy with graduate students in advance of entering into collaborative projects

6. Acknowledge student contributions to research presented at conferences, in professional publications, or in applications for copyrights and patents.

7. Ensure that a student's experience as a teaching, or research, assistant contributes to his/her professional development and does not impede the student's progress toward the degree

8. Create in the lab, supervisory relations with students that stimulate and encourage students to learn creatively and independently while respecting the academic freedom for students to express opinions that may differ from those of faculty

9. Refrain from requesting students to do tasks not closely related to their academic or professional development for the personal advantage of a faculty member.

10. Familiarize themselves with policies that affect graduate students

11. Respect students' need to allocate their time among competing demands, while maintaining timely progress towards degree.

APPENDIX C

INTERVIEW SIGNATURE FORM

Faculty, Staff and Research Associates

Department of Food Science and Technology

Student Name: _____ Arrival Date: _____

Major Advisor: _____

Faculty / Staff Research Associate	Signature/Date
Mr. Joe Boling	
Dr. Renee R. Boyer	
Dr. Beth Chang	
Dr. Melissa W. Chase	
Mr. Brett Driver	
Dr. Susan E. Duncan	
Ms. Joell Eifert	
Dr. Joseph D. Eifert	
Dr. Yiming Feng	
Dr. Cristina Fernandez-Fraguas	
Mr. Alex Hood	
Dr. Haibo Huang	
Mr. Ken Hurley	
Dr. Dave Kuhn	
Dr. Jacob Lahne	
Dr. Joseph E. Marcy	
Dr. Joshua OHair	
Dr. Sean F. O'Keefe	

Ms. Trina Pauley _____

Dr. Katherine Phetxumphou _____

Dr. Monica A. Ponder _____

Ms. Terry Rakestraw _____

Ms. Ann Sandbrook _____

Dr. Amanda C. Stewart _____

Dr. Hengjian Wang _____

Ms. Kim Waterman _____

Mr. Brian Wiersema _____

Dr. Robert Williams _____

Ms. Melissa Wright _____

Dr. Jian Wu _____

Dr. Lily Yang _____

Dr. Yun Yin _____

_____

_____

Off Campus: _____

Dr. Reza Ovissipour _____
(located at Hampton AREC)

Mr. Tommy Saunders _____
(located in Richmond)

Dr. Laura Strawn _____
(located at Eastern shore AREC)

Ms. Abigail Villalba _____
(located at Hampton AREC)

Return completed form to the Staff Graduate Coordinator and a copy to the major professor. This form should be completed by the end of the first semester.

APPENDIX D

Course Listings

Required and Optional Courses		credit hours	Fall	Spring	Odd # year	Even # year	Notes
FST 4000 level courses							**max. 6 credits of 4000 level courses on plan of study**
FST 4405	Food Processing	4	x		x	x	required if equiv. course not previously completed
FST 4504	Food Chemistry	3	x		x	x	required if equiv. course not previously completed
FST 4524	Food Safety and Quality Assurance	3		x	x	x	optional
FST 5000 level courses							**required credit hours: 6+ for MS, 9+ for PhD**
FST 5004	Graduate Seminar	1		x	x	x	required to attend even if you don't register for class
FST 5054	Graduate Professionalism in Food Science	1	x		x	x	required for first year MS & PhD students
FST 5014	Sensory Evaluation of Foods	3		x		x	
FST 5034	Good Agric. Practices and Good Manufact. Prac. (online)	3		x		x	
FST 5044	Global Food Laws and Regulations	3	x			x	
FST 5404	Food Packaging	3	x			x	
FST 5604	Advances in Food Microbiology	3	x		x		required if equiv. course not previously completed; not available to students with previous background in undergraduate food micro.
FST 5614	Food Safety and Security (online)	3		x	x		
FST 5624	Applied Food Microbiology and Sanitation (online)	3	x		x		
FST 5664	Flavor Chemistry	3		x	x		
FST 5974	Independent Study	1-6	x	x	x	x	

Other graduate courses that may be required

FST 5974 Independent Study	1-6	x	x	x	x	
BCHM 5124 Biochemistry for Life Sciences	3	x		x	x	required for MS & PhD students
STAT 5605 or 5615 Biometry I or Statistics in Research I	3	x		x	x	STAT 5605 or 5615 required for MS & PhD students
STAT 5606 or 5616 Biometry II or Statistics in Research II	3		x	x	x	STAT 5606 or 5616 or alternate required for PhD students

Other recommended courses:

Department	Number	other 5000/6000 level courses commonly selected	credit hours	Fall	Spring
ALS	5115, 5116	Nutrition I and II (GI/digestive physiology)	3		
ALS	5204	Research and Information Systems in the Life Sciences	3		
ASPC	5004	Biotechnology in agriculture and society	3		
BCHM	4034	Environmental health toxicology	3		
BCHM	4224	Spectroscopy of biomolecules	3		
BIOL	5604	Physiology of Microorganisms	4		
BIOL	5844	Advanced proteomics and biological mass spectrometry	4		
BIOL	5884	Molecular Biology of the Cell	3		
BIOL	6084	TS: Advanced Protein Methods	3	x	
BIOL	5674G	Advanced Pathogenic Bacteriology	4	x	
CEE	5724	Environmental Monitoring and Sampling	3		
CEE	5804	Engineering Ethics and The Public	3		
CHEM	4754	Instrumental analysis for agric. and environ. sciences	4		
CHEM	5124	Analytical spectroscopy	3		
CHEM	5524	Molecular structure determination	3		
CHEM	6504	Chemistry of natural products	3		
CHEM	5104	Advanced analytical chemistry I	3		
EDCI	6644	College Teaching	3		
EDRE	6504	Qualitative Research I	3		
GRAD	5104	Preparing the Future Professorate	3	x	
GRAD	5114	Contemporary Pedagogy	3		
GRAD	5984	Communicating Science	3		
HNFE	5104	Nutritional aspects of digestive systems	3		
HNFE	5144	Molecular aspects of nutrition and disease	3		
HNFE	5224	Proteins & Enzymes in Foods	3		
SBIO/CHEM	5424	Polysaccharide Chemistry	3		x
STAT	5204G	Experimental Design: Concepts and Applications	3		

APPENDIX E
GRADUATE PLAN OF STUDY FORM (M.S.)

Separate electronic file (.xlsx) accompanies the online version of the Handbook*

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

Master of Science in Life Sciences Plan of Study – Thesis Option

Name_____ **ID#**_____ **Date**_____

Semester	Subject	Course Number	Course Title	Credit Hrs
	FST	5994	Research and Thesis	
	FST	5994	Research and Thesis	
	FST	5994	Research and Thesis	
	FST	5994	Research and Thesis	
	FST	5994	Research and Thesis	
			Total Research Credit Hours	**0**

5000 Level (or higher) Courses VIRGINIA TECH: Minimum of 14 credit hours

• BS/MS Students - Do not include 5000 level courses taken during your senior year. These courses should be listed in the transfer section below.

• BCHM 5124 or equivalent required by FST *• STAT 5605, 5615 or equivalent required by FST*

• FST 5### (6+ credit hours) required by FST *• FST 5974 and 5984 total hours maximum = 6*

Semester	Subject	Course Number	Course Title	Credit Hrs
	FST	5054	Graduate Professionalism	1
			Total 5000 (or higher) Level Credit Hours	**1**

Seminar courses (5004): Min. 2, Max. 3

Semester	Subject	Course Number	Course Title	Credit Hrs
	GRAD	5004	GTA Workshop	1
	FST	5004	Graduate Seminar	1
	FST	5004	Graduate Seminar	1
			Total Seminar (5004) Credit Hours	**3**

4000 Level Courses VIRGINIA TECH: Maximum of 6 credit hours

BS/MS Students - Do not include 4000 level courses taken during your senior year. These courses should be listed in the transfer section below.

Semester	Subject	Course Number	Course Title	Credit Hrs
			Total 4000 Level Credit Hours	**0**

Supporting courses VIRGINIA TECH

Semester	Subject	Course Number	Course Title	Credit Hrs
			Total Supporting Course Credit Hours	**0**

Transfer 5000 (or higher) Level Courses:

No research credit hours can be included. BS/MS students - please include the 5000 level courses taken at VT during your senior year.

Semester	Subject	Course Number	Course Title	Credit Hrs
			Total 5000 (or higher) Level Transfer Credit Hours	**0**

Transfer 4000 Level Courses:

No research credit hours can be included. BS/MS students - please include the 4000 level courses taken at VT during your senior year.

Semester	Subject	Course Number	Course Title	Credit Hrs
			Total 4000 Level Transfer Credit Hours	**0**

Transfer Course Notes: Maximum of 50% of graded coursework can transfer from another university. You can only transfer courses in which you earned a grade of 'B' or better. Attach a copy of your transcript for each course transferred. All courses on the Plan of Study which are more than 5 years old at the time the POS is submitted must be revalidated. Please provide a Course Justification Request form with the Plan of Study.

Scholarly Ethics and Integrity Requirement (CGSP Resolution 2012-13B)

As described in the Department of Food Science and Technology Scholarly Ethics and Integrity Training Plan for Graduate Students (April 2014), the student has a) completed the Graduate Professionalism in Food Science course (FST 5054); b) completed all specified modules for the CITI online training on Responsible Conduct of Research: and c) been notified that they can meet with any of the FST Graduate Committee members to report research ethics concerns, issues, and misconduct.

Advisor Initials*	TOTAL POS CREDIT HOURS (30 min)	4
	Total Graded credits (20 min.)	4
	Research Credits (6 min., 10 max.)	0
	5000 level course credits (14 min.)	1
	Graduate Seminar (2 min., 3 max.)	3
	Ethics and integrity	
	Ensured that total # of credits per semester are between 12-18	

*Advisors please initial that you have confirmed these totals

Proposed Thesis Title:	

Note: Committee members outside Virginia Tech are required to attach a "Graduate Program Faculty and Additional Graduate Advisory Committee Members" form, current curriculum vitae and NIH or NSF style bio sketch.

	Printed Name and Department	Signature	VT ID # (Required)
Committee Chair:			
Committee Member:			
Committee Member:			
Committee Member:			
Department Head:			

APPENDIX F
GRADUATE PLAN OF STUDY FORM (Ph.D.)

Separate electronic file (.xlsx) accompanies the online version of the Handbook*

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

Doctor of Philosophy (Life Science, Food Science) Plan of Study

Name_____ **ID#**_____ **Date**_____

Semester	Subject	Course Number	Course Title	Credit Hrs
	FST	7994	Research and Dissertation	
	FST	7994	Research and Dissertation	
	FST	7994	Research and Dissertation	
	FST	7994	Research and Dissertation	
	FST	7994	Research and Dissertation	
			Total Research Credit Hours	**0**

5000 Level (or higher) Courses VIRGINIA TECH: Minimum of 27 credit hours

- *BCHM 5124 or equivalent required by FST*
- *STAT 5605, 5615 or equivalent required by FST*
- *FST 5### (9+ credit hours) required by FST*
- *FST 5054 required in first year, if no MSLFS*
- *STAT 5606, 5616 or equivalent required by FST*
- *FST 5974 and 5984 total hours maximum = 18*

Semester	Subject	Course Number	Course Title	Credit Hrs
			Total 5000 (or higher) Level Credit Hours	**0**

Seminar courses (5004): Min. 3, Max. 4

Semester	Subject	Course Number	Course Title	Credit Hrs
	GRAD	5004	GTA Workshop	1
	FST	5004	Graduate Seminar	1
	FST	5004	Graduate Seminar	1
			Total Seminar (5004) Credit Hours	**3**

4000 Level Courses VIRGINIA TECH: Maximum of 6 credit hours

BS/MS Students - Do not include 4000 level courses taken during your senior year. These courses should be listed in the transfer section below.

Semester	Subject	Course Number	Course Title	Credit Hrs
			Total 4000 Level Credit Hours	**0**

Supporting courses VIRGINIA TECH

Semester	Subject	Course Number	Course Title	Credit Hrs
			Total Supporting Course Credit Hours	**0**

Transfer 5000 (or higher) Level Courses:

No research credit hours can be included. BS/MS students - please include the 5000 level courses taken at VT during your senior year.

Semester	Subject	Course Number	Course Title	Credit Hrs
			Total 5000 (or higher) Level Transfer Credit Hours	**0**

Transfer 4000 Level Courses:

No research credit hours can be included. BS/MS students - please include the 4000 level courses taken at VT during your senior year.

Semester	Subject	Course Number	Course Title	Credit Hrs
			Total 4000 Level Transfer Credit Hours	**0**

Transfer Course Notes: Maximum of 50% of graded coursework can transfer from another university. You can only transfer courses in which you earned a grade of 'B' or better. Attach a copy of your transcript for each course transferred. All courses on the Plan of Study which are more than 5 years old at the time the POS is submitted must be revalidated. Please provide a Course Justification Request form with the Plan of Study.

Scholarly Ethics and Integrity Requirement (CGSP Resolution 2012-13B)

As described in the Department of Food Science and Technology Scholarly Ethics and Integrity Training Plan for Graduate Students (April 2014), the student has a) completed the Graduate Professionalism in Food Science course (FST 5054); b) completed all specified modules for the CITI online training on Responsible Conduct of Research: and c) been notified that they can meet with any of the FST Graduate Committee members to report research ethics concerns, issues, and misconduct.

Advisor Initials*	TOTAL POS CREDIT HOURS (90 min)	3
	Total Graded credits (30 min.)	3
	Research Credits (30 min., 60 max.)	0
	5000 level course credits (27 min.)	0
	Graduate Seminar (3 min., 4 max.)	3
	Ethics and integrity	
	Ensured that total # of credits per semester are between 12-18	

*Advisors please initial that you have confirmed these totals

Proposed Diss. Title:	

Note: Committee members outside Virginia Tech are required to attach a "Graduate Program Faculty and Additional Graduate Advisory Committee Members" form, current curriculum vitae and NIH or NSF style bio sketch.

	Printed Name and Department	Signature	VT ID # (Required)
Committee Chair:			
Committee Member:			
Committee Member:			
Committee Member:			
Committee Member:			
Committee Member:			
Department Head:			

APPENDIX G

Guidelines for Thesis/Dissertation Research Proposal

The purpose of the proposal is to present a suggested research plan, based on scientific literature, for the thesis/dissertation. Each student must write a formal proposal (minimum of 10 pages) for presentation to the Advisory Committee followed by discussion and suggestions to improve the proposal. The committee may approve the proposal at that initial meeting or may request a subsequent meeting to provide final approval to the proposal. The proposal must be revised accordingly and final, approved copies should be provided to each committee member and to the graduate program coordinator to include in the student's file. The research proposal must be completed within the first year of graduate study.

Components of the proposal include:

I. Title Page
- Meaningful title
- Author
- Degree, Major
- Date of proposal defense and final approval by the Advisory Committee.
- "Approved by" statement with typed names for the major professor and each committee member and lines for signatures.

II. Introduction and Justification
- Brief history of the problem and justification for the project based on literature search.
- Objective(s) and null and alternative hypotheses stated.

III. Literature Review
- Review of current literature related to the proposal objectives.
- The purpose is to demonstrate that the student is knowledgeable about the published research related to the research objectives as well as bringing a synopsis of the literature to the committee for assisting them in understanding the scope of the research area.
- Suggested minimum page length is 5.

IV. Materials and Methods
- The objective of this section is to provide enough information that the committee can determine if the adequate experimental design, analytical procedures and statistical methods are in place to meet the objectives of the study.
- Identifying control treatments, and the dependent variables is important.
- Listing of materials and supplies, essential equipment needed, special considerations or space needs should be clearly identified.

V. Time Table

VI. References
- Should be sufficient in number and quality to represent the current literature (at least the past 5-10 years).
- Should be presented in style format representative of one of the major food science journals such as Journal of Food Science, Journal of Food Protection, or others as identified by your major professor.

Writing Quality

- Follow journal style throughout proposal
- Typed, double-spaced, 8 1/2" x 11" paper, 1" margins.
- Numbered pages consecutively (page 1 - Title Page).
- Cited references properly in the text and reference list.
- Defined acronyms the first time that they were used.
- Put each table and figure on separate pages with proper titles.
- Made proper reference to tables and figures in the text.
- Keep proposal concise and focused
- Use correct grammar and spelling

APPENDIX H

SEMINAR MANAGEMENT AND GRADUATE STUDENT RESPONSIBILITIES

Department of Food Science and Technology

Objectives of Seminar

The primary objectives of the Department Graduate Seminar are:

(A) To serve as a means for graduate students to gain experience in presenting scientific data either their own research or summarizing a scientific paper or technical report.

(B) To widen students' knowledge of recent developments in Food Science and Technology and allied disciplines.

Administration of Seminar

Seminar programs will be administered by a faculty member appointed by the Department Head. Responsibility for seminar may rotate annually among different faculty members. The assigned faculty member will be responsible for determining seminar topics and approve all presentations by graduate students. The faculty member in charge of the seminar will evaluate all student presentation seminars for performance, knowledge of subject matter, clarity of speech, clarity of presentation materials, and overall style.

Seminar Structure

(A) Attendance at Departmental seminars is a requirement for all graduate students. Only rarely will graduate students be excused from seminar attendance, and then with good reasons such as attendance of professional meetings, or important personal reasons. Students should discuss this absence in advance with instructor.

(B) Each M.S. and Ph.D. student is required to enroll in FST 5004 Graduate Seminar (Spring only) in each year of residence on campus and meet the requirements for the course; typically the primary requirement is to deliver a scientific seminar presentation.

(C) Each graduate student is also required to present a seminar on the subject of his/her thesis or dissertation when the research work is completed, or near completion, preferably during the last semester of residence on campus.

(D) A faculty member will assist in selecting topics and schedule seminars each academic year, in consultation with each student and his/her Major Professor. Scheduling for seminars will begin when the pre-registration period starts for each semester.

(E) The Departmental Graduate Committee has prepared a seminar evaluation form which identifies factors that are considered important in the presentation of seminars by graduate students. Evaluation of seminars are intended to make seminars a better learning experience for all participating students and to help students improve delivery of oral technical reports. Faculty members and graduate students will be asked to evaluate the seminar presentation using the seminar evaluation form. These evaluations will be reviewed by the faculty member in charge of the seminar who will provide this feedback to students and meet with the student if the student desires.

(F) Each student seminar speaker will prepare a 250 to 350 word abstract of his/her seminar, and a list of associated literature references in accordance with the Journal of Food Science guidelines. The content of the abstract should closely conform with IFT's recommendations for preparation of abstracts:

> "An abstract should contain a concise statement of: (A) the problem under investigation; (B) the experimental method used; (C) the essential results obtained including quantitative data for representative experiments, or summary data; and (D) conclusions. Do not state, 'the results will be discussed'."

APPENDIX I1

Graduate Student Check List: BS - MS

Department of Food Science and Technology

Student Name: _____

Degree Program: MSLFS **Entry Date**: _____

Advisor Name: _____

These guidelines are provided to assist in planning your degree and supplement the Graduate Policies and Procedures listed in the Graduate Catalog. Students should read and print or download a copy of this material (see http://www.grads.vt.edu/) to document the Policies and Procedures in force at enrollment.

Date Completed	**Task for progress toward degree**	**Target Date**
	Attend department graduate student orientation	**Week before classes start**
	Attend Graduate teaching assistant workshop	**Week before classes start and semester 1**
	Complete Faculty, Staff and Research Associate interview signature sheet (Appendix C), turn in to main office	**End of Semester 1**
	Complete building and laboratory safety training (Appendix L)	**Semester 1**
	Complete Emergency action plan training (scheduled by Dr. Joe Eifert)	**Semester 1**
	Complete Biosafety training (Appendix L)	**Semester 1**
	Form Advisory committee; submit plan of study,	**End of Semester 2**
	First committee meeting (review plan of study)	**End of Semester 2**
	Write and defend research proposal to advisory committee Second committee meeting	**End of Semester 2**
	Perform proposed research, write thesis	**Semester 2 – 3**
	Third committee meeting (report data)	**Beginning of Semester 4**
	Schedule defense date	**Semester 4**
	Complete appropriate graduate school forms prior to defense	**3 weeks prior to defense**
	Thesis defense and final exam[1,2]	**Semester 4**
	Submit ETD	**2 weeks following defense**
	Clean up your materials in the lab and turn in keys	**Before leaving town**

[1]The thesis defense normally must be held during regular academic semesters or sessions and must be scheduled through the Graduate School. Requests to schedule the defense must be received by the Graduate School (with a copy to the departmental graduate coordinator) at least 2 weeks before the proposed date of the defense. [2]Financial support from the Department is normally limited to 2 years and may be withdrawn after this time.

APPENDIX I2

Graduate Student Check List: MSLFS - PhD

Department of Food Science and Technology

Student Name: _____

Degree Program: Ph.D.—admitted after completion of M.S. **Entry Date**: ____

Advisor Name: _____

These guidelines are provided to assist in planning your degree and supplement the Graduate Policies and Procedures listed in the Graduate Catalog. Students should read and print or download a copy of this material (see http://www.grads.vt.edu/) to document the Policies and Procedures in force at enrollment.

Date Completed	Task for progress toward degree	Target Date
	Attend department graduate student orientation	**Week before classes start**
	Attend Graduate teaching assistant workshop	**Week before classes start and semester 1**
	Complete Faculty, Staff and Research Associate interview signature sheet (Appendix C), turn in to main office	**End of Semester 1**
	Complete building and laboratory safety training (Appendix L)	**Semester 1**
	Complete Emergency action plan training (scheduled by Dr. Joe Eifert)	**Semester 1**
	Complete Biosafety training (Appendix L)	**Semester 1**
	Form Advisory committee; submit plan of study,	**Semester 1**
	First committee meeting (review plan of study)	**End of Semester 2**
	Write and defend research proposal to advisory committee Second committee meeting	**End of Semester 3**
	Perform proposed research, write dissertation	**Semester 3 - 5**
	Preliminary Examination	**Semester 4**
	Third committee meeting (report data)	**Semester 4**
	Fourth Committee meeting (report data)	**Semester 5**
	Schedule defense date	**Semester 6**
	Complete appropriate graduate school forms prior to defense	**3 weeks prior to defense**
	Dissertation defense and final exam[1,2,3]	**Semester 4**
	Submit ETD	**2 weeks following def.**
	Clean up your materials in the lab and turn in keys	**Before leaving town**

[1]The Preliminary Examination for the Ph.D. must be taken at least 6 months before the Ph.D. defense. At least 24 hours of course work and/or research must remain to be taken, including work for which the student is currently enrolled.
[2]The Preliminary Examination and the Ph.D. defense normally must be held during regular academic semesters or sessions and must be scheduled through the Graduate School. Requests to schedule an examination or defense must be received by the Graduate School (with a copy to the departmental graduate coordinator) at least 2 weeks before the proposed date.
[3]Dissertation defense need to be at least 5 weeks before the end of the semester to be eligible to attend commencement.
NOTE: Financial support from the Department is normally limited to 3 years.

APPENDIX J

Graduate Student Progress Evaluation

Department of Food Science and Technology

Reporting period:

1. **August through December, 20____ (due Dec. 15)**
2. **January through April, 20____ (due May 15)**

Please report your progress and achievements for the time period(s) above. Submit the original signed copy to Staff Graduate Program Coordinator and provide copies to all Advisory Committee members.

_____	_____	_____
Student Name	**Last 4 digits VT id #**	**Degree**

Courses completed current semester (tentative grade if necessary):

Semester	Year	Dept. and #	Course Name	Credit Hours	Grade
		FST 5994/7994	Research and Thesis/Dissertation		EQ

Virginia Tech Grade Point Average (GPA): Present Term _____ Cumulative _____

Cumulative Credit Hours: Non-Research _____ + FST 5994 or 7994 _____ = Total _____

Plan of Study submitted: Fall or Spring, 20___

Doctoral Preliminary Exam passed: Fall or Spring, 20___

Assessment of Progress toward the Degree: In the spaces below, the student can provide a listing of accomplishments since the last evaluation period. Please list or describe your activities and accomplishments under the following headings:

Research: (include research progress and performance; research proposal defense; peer-reviewed manuscript submitted and/or accepted; professional meeting presentations or attendance

Teaching: (include teaching assignment and duties; student evaluation rating, if known)

Extension / Outreach:

Professional, University or Community Service:

Awards, Honors, Recognitions:

Please describe specific goals the student will accomplish in the next reporting period:

Assessment Provided by Advisor and/or Advisory Committee:

A. Coursework Progress:

Excellent	_____
Good	_____
Average	_____
Unsatisfactory	_____

B. Research Progress:

Excellent	_____
Good	_____
Average	_____
Unsatisfactory	_____

C. Characterization of the student's research during this evaluation period.

D. The overall progress to degree at this time is Satisfactory or Unsatisfactory.

E. Projected date for thesis/dissertation defense: _____

I confirm that at least one Committee Meeting was held this semester. ☐

Major Advisor (Chair) Comments:

Committee Member Comments:

Committee Member Comments:

Committee Member Comments:

Signatures:

Major Advisor (Chair) _____

Committee Member _____

Committee Member _____

Committee Member _____

Committee Member _____

Required signatures include your Major Advisor (Chair) and at least one other Committee Member. Signatures from all of your Committee Members is preferred. *If you do not have an Advisory Committee, then only your Major Advisor (Chair) signs the form.*

APPENDIX K

Virginia Tech
Department of Food Science and Technology

Leave Request

Student Name: _____

First day of requested leave: _____

Date of return to work: _____

Number of workdays (M-F) of leave requested: _____
Are any of these workdays designated state holidays for 2018/2019 (Labor Day, November 23 and 24, December 25-26 & 31, January 1, January 15, Memorial Day, July 4)? If so, subtract and enter new total_____

Number of days of leave taken this year (August 10, 2018- August 9, 2019)* _____

I confirm that I intend to be absent only the days indicated on this sheet. These workdays will be subtracted from the 10 days of vacation time provided to me per calendar year.
I confirm that I have read and understood the leave expectations described within the graduate student's expectations document. I confirm that if this document has not been received two weeks prior to the date of planned leave, my leave request can be denied. I understand that leave will not be granted during crucial parts of laboratory projects or when it conflicts with assistantship responsibilities.

Student signature_____
Date

Faculty advisor signature_____
Date

*Advisor justification /approval required if over 10 days_____

Department Head Signature_____
Date

This form is to be submitted to the Staff Graduate Coordinator and will be placed in the student's file.

Departmental Research Training Form

- Appropriate trainings must be completed before you are able to enter any research space unaccompanied. The area(s) in which you will be working will dictate which trainings you must complete.
- If you will be paid, all appropriate training must be completed before your addition to the University payroll can be processed.
- Upon completion of the required training modules, you will be allowed to access designated spaces by swipe access or key(s).

SECTION I

Name _____

☐ Faculty/Staff ☐ Undergraduate ☐ Graduate Student

Hokie Passport ID Number: _____ PID: _____

I certify that the above-named individual will be working in a designated laboratory space under my instruction and with the appropriate direction and supervision.

_____

Supervisor's Name (Printed) and Signature

Work/Research Location(s):
Building(s) ☐ FST ☐ HABB1 ☐ ISLB ☐ Other

Room Number(s)/Area(s) _____

SECTION II

Required reading for **everyone** working in a research space:

☐ OHSA Lab Standard (29 CFR 1910.1450)
http://www.osha.gov/SLTC/laboratories/standards.html
☐ Virginia Tech Policy 1005: Health and Safety Policy
http://www.policies.vt.edu/1005.pdf

SECTION III

I have been shown the location of the following items:

☐ First aid kit
☐ Spill kits - chemical and biological, where appropriate
☐ Fire extinguishers
☐ Eye wash stations
☐ Emergency deluge showers
☐ SDS for all chemicals
☐ Departmental/Building Chemical Hygiene Plan (CHP)
☐ Any pertinent laboratory Standard Operating Procedures (SOPs)

Researcher's initials: _____

PI or Lab Manager's initials: _____

SECTION IV

All researchers should complete the following training modules (with a passing score on the quiz) prior to working in any research space:

- ☐ Chemical Safety: General Lab Safety
  http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=1540
- ☐ Biological Safety: Laboratory Hazardous Waste
  http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=3395
- ☐ Biological Safety: Introduction to Biosafety Cabinets
  http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=550
- ☐ Biological Safety: Safe Autoclave Use and Verification
  http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=1457
- ☐ Fire and Life Safety: Flammable Liquid Safety
  http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=327
- ☐ Fire and Life Safety: Portable Fire Extinguishers
  http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=331
- ☐ Compressed Gas Cylinders: Compressed Gas Cylinder Safety
  http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=678
- ☐ Personal Protective Equipment (PPE) Awareness
  http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=337
- ☐ CITI Responsible Conduct of Research
  http://www.research.vt.edu/sirc/hrpp/training.html
- ☐ Biosafety for Research Labs
  http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=3737
  (If you will be working with any animals with a backbone or human subjects, there will be an option to select the version which includes Bloodborne Pathogen training.)

SECTION V

Will you be a paid researcher? ☐ Yes ☐ No

If yes, complete the following module:

- ☐ CITI Conflict of Interest
  http://www.research.vt.edu/sirc/hrpp/training.html

SECTION VI

Will you be working with animals with a backbone? ☐ Yes ☐ No

If yes, see http://www.research.vt.edu/iacuc/training.html for more details and complete the following modules:

- ☐ Core IACUC Training (refresher required every 3 years)
- ☐ Virginia Tech-Specific IACUC Training (refresher required every 3 years)
- ☐ Virginia Tech Occupational Health and Safety Training (refresher required every 3 years)
- ☐ EHSS Health Survey

SECTION VII

Will you be working in a BSL2 space? ☐ Yes ☐ No

If yes, complete the following:

☐ EHSS Health Survey
http://secure.hosting.vt.edu/www.ehss.vt.edu/med_survey/

SECTION VIII

A. Will you be working with human subjects? ☐ Yes ☐ No

If yes, complete the following:

☐ CITI Social & Behavioral Research
http://www.research.vt.edu/sirc/hrpp/training.html

B. Does the potential exist that you will come in contact with saliva, blood or feces? ☐ Yes ☐ No

If yes, complete the Biosafety for Research Labs module WITH bloodborne pathogen training.

☐ Biosafety for Research Labs
http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=3737

SECTION IX

Immunization history (documentation not required):

A. When was the last date you received a tetanus vaccination? _____
B. Have you ever received the Hepatitis B vaccination series? _____
If so, when did you complete the series? _____

SECTION X

I certify that I have completed the appropriate laboratory-specific training and submitted documentation of completion to the appropriate person (laboratory managers Kim Waterman or Melissa Wright).

_____
Researcher's Signature

SECTION XI

Upon review of this document and receipt of any required documentation, I authorize the above-named researcher to be given access to the following space(s) by Hokie Passport swipe.

☐ Chemistry corridor
☐ Pilot Plant corridor
☐ HABB1 (after-hours)

In addition, I authorize this researcher to receive keys to the following space(s):

_____ ☐ Not Applicable

_____

Signature of Laboratory Manager (Kim Waterman or Melissa Wright) Date

SECTION XII

Upon review of this document and receipt of any required documentation, I authorize the above-named researcher to be issued the following keys:

☐ BSL2 corridor
☐ Individual BSL2 laboratory number(s) _____

_____

Signature of Dr. Monica Ponder (no substitutions) Date

APPENDIX M

VT FST Guidelines for "BS to PhD" Track

Recruitment

1. Prospective students **will not** be promised participation in BS-PhD track if admitted as MS students
2. Prospective students **will** be advised that participation in the BS-PhD track depends on factors that may not be in their control, such as:
    a. Progress
    b. Funding
    c. The nature of their project
    d. Willingness of the advisor
3. Students interested in the BS-PhD track should discuss this with potential advisors during recruitment.

Admissions

1. Only students with an MS degree (or equivalent) will be admitted directly to PhD program.
    a. Occasionally, students with BS degrees must be admitted as PhD students due to specific funding sources that are only for PhD; their status as "PhD" students is provisional until they meet the same requirements as the other students wishing to switch tracks (see below). Students who fail to meet the requirements will be placed in the MS track.
2. Students w/o an MS degree (or equivalent) will be admitted to the MS program.
    a. These students can switch tracks from BS-MS to BS-PhD by meeting the requirements specified below
3. No exceptions will be made (except in the case of funding that requires a PhD student status). Students wishing to do the BS-PhD track must enroll as MS students and meet the track requirements.
    a. Students with BS degrees in non-FS disciplines will be eligible for BS-PhD track switch
4. Students are encouraged to discuss desire to switch tracks with advisor and/or department head IMMEDIATELY upon starting MS track due to strict deadlines
    a. Student must determine the willingness and ability of the professor to help (due to deadlines, professor must be willing to help ID and design project, help expedite the writing process, etc., on an accelerated schedule)

Requirements for switching tracks from BS-MS to BS-PhD

1. Students may switch from BS-MS track to BS-PhD track only in 3rd or 4th semester (< 2 is too little time to properly evaluate, > 4 is too long)
    a. Students must enter the BS-PhD track by the end of their 4th semester; students failing to do so will not be allowed to switch tracks thereafter (no exceptions)
2. Student must be making accelerated progress towards MS degree:
    a. Graduate committee selected (will need to be expanded by 1 member after switch is made)
    b. Plan of study submitted (will need to be expanded to PhD requirements after switch is made)
3. Satisfactory progress in at least 15 credits of graduate coursework at VT
    a. Coursework being completed on MS track schedule
    b. No grade lower than a B− (higher than grad school minimum, since the attempt is to ID exceptional students)
4. Student is making accelerated progress and shows promise in research
    a. Defined by having submitted a manuscript:

i. Submitted by the end of the final exams of the 3rd semester (initial submission). Students not meeting this deadline will be required to finish on the MS track
ii. Specifics:
1. Submitted to a peer-reviewed journal
2. NOT a review article (must be research/data)
3. Student is 1st author
4. Student wrote the majority of the manuscript under the guidance of the advisor and co-authors
5. Student's own work represents ≥ 50% of the data in manuscript (not simply writing up a previous student's work, as this would not be "research progress")

5. Student has had 2 committee meetings:
   a. First committee meeting (by end of 2nd semester per department guidelines):
      i. Intent to try for BS-PhD track discussed
      ii. Concerns of committee addressed with student
      iii. Plans are made to meet requirements to enter the track
   b. Second committee meeting (in the 3rd semester):
      i. Progress and requirements are reviewed
      ii. Advancement to BS-PhD track is approved or rejected
6. There will be absolutely no exceptions to deadlines
7. Consent of:
   i. The advisor
   ii. The advisory committee (unanimous)
   iii. The graduate committee (majority)
   iv. The department head (for administrative purposes)
8. Required funding is available or will be available