

Student Handbook

Guidelines and Policies

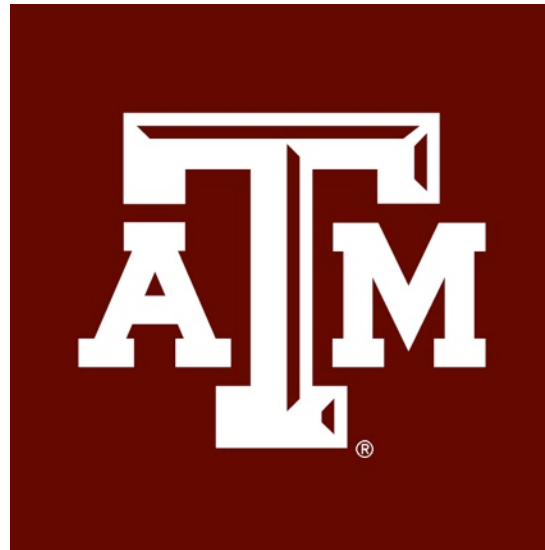
Directing Graduate Studies Completion

in

Food Science and Technology

at

Texas A&M University



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Submit all concerns or questions to:

*Stephen Talcott, Ph.D., Associate Head for Academic
Programs Department of Nutrition and Food Science
136 Cater-Mattil Hall
2253 TAMU, 979-862-6655
nfs.tamu.edu*

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Introduction

Welcome

Welcome to Texas A&M University and the graduate program in Food Science and Technology (FSTC)! As an admitted student, you are now part of a long history of excellence in teaching, research, and service in the food sciences at Texas A&M University. Graduate degrees in Food Science and Technology are administered by the Graduate Faculty of Food Science within the Department of Nutrition and Food Science in accordance with all relevant policies and procedures of Texas A&M University, College Station, TX.

The Master of Science (M.S.) [Thesis option], Master of Agriculture (M.Agr.), and Doctor of Philosophy (Ph.D.) degrees are offered and may be obtained through appropriate course of study, completion of research or other requirements, successful completion of university-directed administrative procedures, and successful defense of the thesis, dissertation, or other final document. Students may pursue fundamental and/or translational (i.e. applied) research in the areas of food chemistry, products processing, food microbiology and safety including probiotic microbiology, engineering and rheology, food packaging, ingredients technology, meat or poultry science, cereals science and processing, plant bioactives, sensory analysis, etc. A process of research or study will be outlined by the student with guidance from the student's graduate advisory committee membership.

Welcome to Aggieland and gig 'em!

Programs of Study and Degree Information

Participating Departments & Supporting Offices

Participating Academic Departments and Programs

Faculty who are members of the Graduate Faculty of Food Science and Technology may or may not maintain an administrative location (i.e. ad-loc) appointment within the Department of Nutrition and Food Science. For students advised by faculty who maintain their ad-loc outside of the Department of Nutrition and Food Science, the student will be required to interact with administrative officers in multiple departments to complete all requirements for degree completion. *Nevertheless, the Department of Nutrition and Food Science serves as the primary academic home for all students pursuing degrees within the FSTC graduate curriculum.* Departments and programs with FSTC graduate program-participating faculty are:

1. Department of Animal Science (animalscience.tamu.edu)
2. Department of Biological and Agricultural Engineering (baen.tamu.edu)
3. Department of Horticultural Sciences (hortsciences.tamu.edu)
4. Department of Nutrition and Food Science (nfs.tamu.edu)
5. Department of Poultry Science (poultry.tamu.edu)
6. Department of Soil and Crop Sciences (soilcrop.tamu.edu)
7. Department of Veterinary Integrative Biosciences (vetmed.tamu.edu/vibs)
8. Texas Healthy Aging Research Network (srph.tamhsc.edu/research/txhan.html)

The membership of the Graduate Faculty of Food Science, along with biographical information descriptions of teaching and research expertise, are listed at: nfs.tamu.edu/grad-faculty-food-science/.

Degree Program Assistance Contacts

Comprehensive degree descriptions and completion requirements may be obtained from the Texas A&M University Graduate Catalog (published annually) at URL: catalog.tamu.edu. A student should download a copy of the Graduate Catalog upon their arrival at TAMU if not provided a copy by department/program personnel, and refer to it throughout their degree program. Past editions of the Catalog are posted along with the current edition, and students should download the edition corresponding to and academic year in which they began their degree. Additionally, students unable to resolve concerns by consulting the Graduate Catalog may direct questions to the TAMU Office of the Registrar and/or Office of Graduate and Professional Studies (OGPS) as directed below:

Office of the Registrar

General Services Complex
750 Agronomy Road, Suite 1501
College Station, TX 77843-0100
979-845-1031
registrar.tamu.edu

Office of Graduate & Professional Studies

001 Commons Building
College Station, TX 77843
979-845-3631
ogs.tamu.edu

Academic Integrity and Honor Policy

Students are expected to, at all times, complete coursework and all degree procedures in accordance with Texas A&M University Aggie Honor Code and Academic Integrity Policy. Detailed explanation of the Aggie Honor Code and Academic Integrity Policy, as well as other information related to academic and research ethical behavior and integrity, including university disciplinary procedures for student infractions of the Honor Code, are located at: aggiehonor.tamu.edu.

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

Doctor of Philosophy (Ph.D.)

Core Curriculum: A student must successfully complete the FSTC curriculum, including minimal coursework in addition to graduate committee-directed coursework, in addition to successful completion of administrative/academic procedures for the degree. The Ph.D. in Food Science and Technology requires a minimum of 64 credit hours beyond the M.S. degree and a minimum of 96 credit hours beyond the B.S. degree. **Students wishing to pursue a Ph.D. in FSTC that have already obtained a M.S. degree (thesis-bearing option only) may not submit coursework previously submitted for completion of the M.S. degree towards the credit requirements of the Ph.D.**

Minimal Degree Requirements: Minimal degree requirements for the Ph.D. in FSTC are provided below, and may also be found at: <http://nfs.tamu.edu/doctoral-program-in-food-science/>. Students are advised to seek guidance from their primary faculty advisor in selecting appropriate coursework for completion of the Ph.D. A degree plan, listing all coursework the student wishes to apply toward degree completion requirements (including FSTC 681, 691 and/or 685 credits), must be filed with TAMU OGPS in accordance with university policies on degree completion and with assistance from their graduate committee chair(s). The degree plan must be submitted prior to the beginning of the student's fifth academic semester, and must be submitted electronically at the site: <https://ogsdpps.tamu.edu>. Students are directed to the TAMU Graduate Catalog for comprehensive information regarding course selection and degree plan submission requirements and timeline for completion (catalog.tamu.edu).

Coursework requirements are intended only to provide minimum essential coursework necessary for completion of the Ph.D. degree in order to demonstrate competency in the food sciences. Students will select courses with assistance from their graduate advisory committee

chair-person(s), and should select courses that strengthen their knowledge of the field(s) relevant to their field of research and/or are necessary for their academic development. In addition, a Ph.D. student will very likely complete courses offered by other academic programs/departments that are deemed essential for development of competency in academic or research disciplines by the graduate advisory committee. In addition to fixed-credit courses that assign a letter grade to the student at the course's conclusion, a student will also enroll for some number of variable-credit courses, including FSTC 685 and 691. Finally, with regards to completion of Seminar (FSTC 681) requirements, the student will enroll for the class for credit multiple times over the course of their degree program. Coursework requirements are intended to provide only a minimum of essential coursework necessary for completion in order to show competency in the food sciences. Students will complete all courses with assistance from their graduate advisory committee members and should select courses that strengthen their knowledge of the field(s) relevant to their field or research and/or necessary for their academic and professional development.

A Ph.D. student will very likely complete courses offered by other academic programs/departments that are deemed essential for development of competency in academic or research disciplines by the graduate advisory committee. In addition to fixed-credit courses that assign a letter grade to the student at the course's conclusion, a student will also enroll for some number of variable-credit courses, including FSTC 685 and 691. Finally, with regards to completion of Seminar (FSTC 681) requirements, the student will enroll for the class for credit a minimum of three (3) times over the course of their degree program.

Degree Completion Timeline: Students must complete the Ph.D. within a period of ten (10) consecutive calendar years. Graduate credit from coursework more than 10 years old will not be eligible for satisfaction of degree requirements. Students must complete all degree requirements and pass a final examination within four (4) years of completion of preliminary written and oral examinations. The student's final corrected dissertation must be accepted by the TAMU OGPS Thesis Office no later than one (1) year following the completion of the final examination or within the 10 year time limit, whichever occurs first. A student has seven (7) years to complete the Ph.D. degree prior to their being automatically charged out-of-state tuition for registered credits, applied to both Texas residents and non-residents alike. University policy dictates that 21 academic terms (Fall, Spring, Summer) may be completed before out-of-state tuition is charged against the student.

Minimal Course Requirements for the Ph.D. in FSTC

<i>Course</i>	<i>Credits</i>
FSTC 605: Chemistry of Foods ^a	3.0
FSTC 606: Microbiology of Foods ^a	3.0
FSTC 681: Seminar ^b	3.0
FSTC 685: Directed Studies	Will Vary
FSTC 691: Research	Will Vary
FSTC 600+: Elective Coursework ^c	12.0
STAT 600+: Statistics Electives ^d	6.0
Total^e: 64.0	

^a Students having completed FSTC 605 and/or 606 for the M.S. degree in FSTC, or their equivalents at another institution for the M.S. degree, cannot list these courses on their degree plan for the Ph.D. However, students may complete these courses for remedial purposes if deemed necessary by the graduate advisory committee.

^b The student should enroll for FSTC 681 (1.0 credit) at a rate of once per academic year (Fall, Spring, Summer) on average, but must complete 3.0 credits of Seminar to satisfy degree requirements.

^c At least 3.0 credit hours must come from outside the student's primary area of research/interest, from within the food sciences. For example, a student completing a research program in food chemistry may take a course in HACCP or food microbiology, or food rheology.

^d Students must register for statistics coursework not considered equivalent to previously completed statistics courses, regardless of whether those courses were completed at Texas A&M University or at another institution. The student should work with their graduate advisory committee to determine appropriate statistics coursework, unless the re-completion of previously completed coursework is also required for remedial purposes. Similar to FSTC 605 and 606, previously completed statistics coursework submitted for completion of the M.S. degree cannot be utilized towards completion of the Ph.D. degree.

^e Students entering the Ph.D. degree program already possessing the M.S. degree will not be allowed to submit previously completed coursework on their Ph.D. degree plan for completion of degree requirements.

Master of Science (M.S.), Thesis Option

Core Curriculum: A student must successfully complete the FSTC curriculum, including completion of minimal coursework in addition to graduate advisory committee-directed coursework, in addition to successful completion of administrative/academic procedures for the degree. The M.S. in Food Science and Technology requires 32 credit hours beyond the B.S. degree. Students may petition to have some number of credits from another accredited degree-

granting institution transferred for purposes of inclusion on the degree plan, provided university policy is adhered to. Specifically, courses taken during the completion of an equivalent graduate degree at an accredited U.S. institution or approved international institution in which the student earned a grade of B or higher may be considered for transfer. No courses for which a grade is not assigned, but an indication of pass/fail (or satisfactory/unsatisfactory) may be applied from another institution to a TAMU degree. Additionally, courses for which the student earns a grade of D, F, or U at TAMU cannot be absolved by the student completing an equivalent course at another institution and then petitioning for transfer of credit. Up to 12 credit hours of graduate coursework taken by the student while in residence at Texas A&M University may be added to the student's degree plan on top of minimal course requirements, provided that student has obtained graduate committee and OGPS approval. **Decisions on transfer of credits ultimately rests with the Office of the Registrar and the Office of Graduate Admissions, and procedures are described in detail in the TAMU Graduate Catalog.**

Minimal Degree Requirements: Minimal degree requirements for the thesis-bearing M.S. in Food Science and Technology are provided below, and are located at: <http://nfs.tamu.edu/master-of-science-in-food-science/>. Students are advised to seek guidance from their primary faculty advisor(s) in selecting appropriate coursework for completion of the M.S. degree. A degree plan, listing all coursework the student wishes to apply toward degree completion requirements, must be filed with the TAMU OGPS in accordance with university policies on degree completion and with the assistance of their primary faculty advisor. The degree plan must be submitted prior to beginning their third academic semester, and must be submitted electronically at the site: <https://ogsdpss.tamu.edu>. Students are directed to the TAMU Graduate Catalog for comprehensive information regarding course selection and degree plan submission requirements and timeline for completion (<catalog.tamu.edu>).

Minimal Course Requirements for the M.S. (Thesis Option) in FSTC

<i>Course</i>	<i>Credits</i>
FSTC 605: Chemistry of Foods	3.0
DASC/FSTC 606: Microbiology of Foods	3.0
FSTC 681: Seminar (or Departmental Seminar)	1.0
FSTC 685: Directed Studies	Will Vary
FSTC 691: Research	Will Vary
FSTC 600+: Elective Coursework ^a	6.0
STAT 600+: Statistics Electives	3.0
<hr/>	
Total:	32.0

^a At least 3.0 credit hours must come from outside the student's primary area of research/interest, from within the food sciences. For example, a student completing a research program in food chemistry may take a course in HACCP or food microbiology, or food rheology.

Master of Agriculture (M. Agr.)

Core Curriculum: The M. Agr. degree requires 36 credit hours beyond the B.S. degree. Students are disallowed from using FSTC 691 research credits towards completion of the degree, and at least 12 credits of coursework must be completed in non-FSTC courses. Students may utilize FSTC 685 Directed Studies, and FSTC 684 Internship, in addition to completion of other requirements for the completion of their degree. Students must complete a professional internship (FSTC 684) lasting between 3 and 9 months in duration. A final examination, including submission and defense of a professional paper, is required for degree completion.

Graduate Student Classification Codes

Every graduate student, upon admission to his/her respective degree program, will be assigned a code that identifies their rank and status as a graduate student at Texas A&M University. Codes are:

- G6** Post-baccalaureate non-degree seeking graduate student. Students entering at this rank are subject to special considerations and restrictions with regards to credits earned should they at some point wish to convert into a degree-seeking student. The student is directed to the Texas A&M University Graduate Student Handbook for more information regarding university policies and procedures for converting to a degree track student.
- G7** A student that has been admitted to the M.S. program or has been admitted to the doctoral program prior to completion and graduation of the M.S. degree.
- G8** A student that has been admitted to the Ph.D./doctoral program.
- G9** Indicates admission but that documents have yet to be received that are required before a degree plan may be filed by the student. Students in this classification will have their status/code changed to reflect receipt of required documents.

Graduate Courses Fulfilling Curricular Requirements

The course listing below is not intended as a comprehensive list of courses useful for degree completion. The student may select any courses beyond the minimal degree requirements deemed useful to their academic or research preparation/completion, in collaboration with their graduate advisory committee members. In addition, students may enroll in and utilize up to nine (9.0) credits of 300+ and 400+ undergraduate coursework towards degree completion in instances where remediation is required for the student's academic preparation.

Fixed Credit Required FSTC Courses - Course Descriptions

- FSTC 605 **Chemistry of Foods. (3-0). Credit 3.** Chemical covalent and non-covalent interactions in food systems; the glass transition and moisture in foods; carbohydrate chemistry; reactions of food lipids; food protein functionality;

chemistry of flavor; processing chemistry; food additives; and nutraceutical phytochemicals. *Prerequisites*: BICH 410 or BICH 603.

FSTC 606 **Microbiology of Foods. (3-0). Credit 3.** Nature and function of beneficial and defect-producing bacteria in foods; food-borne illness, effects of processing, storage and distribution; techniques for isolation and identification from foods.

FSTC 681 **Seminar. (1-0). Credit 1.** Oral reports and discussions of current research and developments in food technology designed to broaden understanding of problems and stimulate research.

Variable Credit Required FSTC Courses - Course Descriptions

FSTC 684 **Professional Internship. Credit 1 or more each semester.** Experience in application of formal training to a commercial operation under supervision of operations manager and designated faculty member. Student will investigate matter of mutual interest and report results in a professional paper approved by the graduate committee.

FSTC 685 **Directed Studies. Credit 1 to 4 each semester.** Directed study of selected problems emphasizing recent developments in research techniques.

FSTC 691 **Research. Credit 1 or more each semester.** Investigations leading to thesis or dissertation in various areas of food science and technology.

Courses Fulfilling FSTC 600+ Elective Credits Requirement

ANSC/FSTC 607 **Physiology and Biochemistry of Muscle as a Food. (2-2). Credit 3.** Biochemical, histological, anatomical and physical characteristics of muscle cells and factors associated with transformation of muscle cells into meat. *Prerequisite*: BICH 410 or approval of department head.

FSTC/NUTR 610 **Nutritional Pharmacometrics of Food Compounds. (3-0). Credit 3.** Introduction into nutritional pharmacokinetics and pharmacodynamics of food

compounds; specific examples of toxicological and pharmacological effects of food compounds. *Prerequisite:* NUTR 202 or NUTR 203 or FSTC 201 or CHEM 227 or CHEM 222 or instructor approval.

FSTC/POSC 611

Poultry Processing and Distribution Technology. (3-2). Credit 4. Poultry and egg composition, mechanisms of poultry and egg quality preservation, effects of storage environments, time and product treatment; evaluation of commercial methods of product assembly, processing, distribution and quality control; evaluation of physical, microbiological, functional and chemical methods of quality determination.

FSTC/POSC/SCSC/VTMI 619

Molecular Methods of Microbial Characterization. (2-2). Credit 3. Underlying principles of molecular methods for microbial detection and characterization in natural and man-made ecosystems; emphasis on method application and data interpretation; emphasis on microbial pathogens and indicator organisms in foods and environment; laboratory covers select protocols. *Prerequisites:* FSTC 326; SCSC 405; POSC 429; approval of instructor.

FSTC/POSC 629

Microbiology of Food Irradiation. (2-2). Credit 3. The course provides a lecture plus laboratory overview of electron beam and x-ray based food irradiation principles. The objective is to provide students with a working knowledge of using electronic pasteurization as a means of destroying microbial pathogens or retarding microbial spoilage in foods.

FSTC/SCSC 630

Cereal Grains for Human Food. (3-3). Credit 4. Fundamental concepts of dry milling, wet milling, oil extraction, baking, malting, brewing, storage, sanitation and quality evaluation and control interrelated with physical and biochemical properties of cereals and their products; use of instruments and techniques to evaluate cereal quality. *Prerequisite:* Approval of instructor.

FSTC 631

Food Carbohydrates. (3-0). Credit 3. Chemistry, structure, functionality and nutritional properties of food carbohydrates; fiber chemistry, functionality and nutritional

properties, artificial sweeteners, starch structure and functionality of hydrocolloid functionality. *Prerequisite:* BICH 410. (Offered in alternate years)

FSTC 634

Oilseed Proteins for Foods. (3-0). Credit 3. World production, composition, processing technologies, uses of products (oil, meal, protein concentrates and isolates, and texturized products) in feeds and foods; present and potential food applications of oilseed proteins. *Prerequisites:* CHEM 228 and CHEM 317. (Offered in alternate years)

FSTC 635

Oil and Fat Food Products. (3-0). Credit 3. Composition, properties and reactions; sources, handling and storage of raw materials; extraction refining and bleaching; hydrogenation, deodorization, esterification and inter-esterification; fractionation; uses in salad oils shortenings, margarine, bakery products and other foods. *Prerequisites:* CHEM 228 and CHEM 317. (Offered in alternate years)

FSTC/NUTR 640

Therapeutic Microbiology. (3-0). Credit 3. Alimentary (gastrointestinal) microbiology including: (i) the “normal” intestinal microbiota; (ii) probiotic and prebiotic nutritional supplements; (iii) recombinant pharmabiotics; (iv) gut-associated lymphoid tissue and mucosal immunity; (v) foodborne gastrointestinal pathogens; and (vi) fermented products as functional foods. *Prerequisite:* Undergraduate survey course in microbiology (or instructor’s consent).

ANSC/FSTC 647

Technology of Meat Processing and Distribution. (3-0). Credit 3. Quantitative and qualitative characteristics of meat and meat products as related to food technology processing operations; manufacturing, preservation, packaging, and merchandising.

ANSC/FSTC 657

Hazard Analysis and Critical Control Point System. (3-0). Credit 3. Examination of the Hazard Analysis and Critical Control Point (HACCP) principles specifically related to meat and poultry; microbiological and process overviews; good manufacturing practices (GMP) and standard operating procedures (SOP) development; team-building and implementation into industry operations. This class is designed for the production of food and fulfills the

training requirements of USDA's HACCP regulation for meat and poultry (9 CFR 417), and FDA's HACCP regulations for fish and fishery products (21 CFR 123, 1240) and for juice (21 CFR 120).

ANSC/FSTC 667

Industrial Processed Meat Operations. (2-2). Credit 3. Application of scientific principles and business practices to manufactured meat products; interrelationships among marketing, manufacturing, product development, regulatory compliance and quality assurance in commercial processed meat operations. *Prerequisites:* Approval of instructor.

FSTC/NUTR 669

Experimental Nutrition & Food Science Laboratory. (1-6). Credit 4. Nutritional intervention in animal models of metabolic or emotional disorders; genetic modifications or pathogens in food products; analyses of gene expression and behavior. *Prerequisite:* BICH/GENE 432 recommended; graduate in nutrition or related major.

FSTC/NUTR 671

Critical Evaluation of Nutrition and Food Science Literature: Evidence Based Reviews. (3-0). Credit 3. Evaluation of scientific literature, research methods within literature, and the quality of scientific studies to produce an evidence-based review in areas specific to nutrition and food science. *Prerequisites:* NUTR 202 or NUTR 203 and STAT 302; knowledge of nutrition, statistics, and technical writing helpful.

ANSC/FSTC 677

Instrumental Methods in Food Analysis. (2-6). Credit 4. Technique of chemistry, biochemistry and molecular biology used to analyze food products, operational principles of current instrumentation; hands-on experience with a variety of sample preparation techniques and modern laboratory instruments. *Prerequisite:* CHEM 316/CHEM 318 or equivalent.

ANSC/FSTC 687

Sensory Evaluation of Foods. (2-2). Credit 3. Application of sensory science principles and practices to food systems including an understanding of discriminative, descriptive and consumer sensory techniques. *Prerequisites:* CHEM 222 or CHEM 228.

FSTC 689

Special Topics in... Credit 1 to 4. Special topics in an

identified area of food science and technology. May be repeated for credit.

ANSC/FSTC 697

Applied Microbiology for Foods of Animal Origin: Processing, Sanitation and Sanitary Design. (3-0). Credit 3. Application of basic food microbiology knowledge and principles to food production processes and products; sources of microbiological contamination and their impact on food safety and spoilage; application of sanitary design and validation; testing and auditing to monitor and trouble-shoot the process. *Prerequisites:* DASC/FSTC 326 or FSTC 606 or equivalent.

STAT Courses Useful Towards Fulfillment of Degree Requirements

(Courses listed are not intended to be an exhaustive list of statistics graduate-level offerings at Texas A&M University, but rather have been chosen as being representative of most frequently utilized courses to fulfill statistics requirements for the FSTC graduate degree. The student should consult with their graduate advisory committee members when selecting statistics courses in order to select those courses that will provide essential learning towards the utilization and completion of required statistical analyses as related to their research foci. Students are reminded that statistics courses completed during the M.S. degree or their equivalents cannot be submitted for completion of requirements of the Ph.D. degree.)

STAT 651

Statistics in Research I. (3-0). Credit 3. For graduate students in other disciplines; non-calculus exposition of the concepts, methods and usage of statistical data analysis; T-tests, analysis of variance and linear regression. *Prerequisite:* MATH 102 or equivalent.

STAT 652

Statistics in Research II. (3-0). Credit 3. Continuation of STAT 651. Concepts of experimental design, individual treatment comparisons, randomized blocks and factorial experiments, multiple regression, Chi-squared tests and a brief introduction to covariance, non-parametric methods and sample surveys. *Prerequisite:* STAT 651.

STAT 653

Statistics in Research III. (3-0). Credit 3. Advanced topics in ANOVA; analysis of covariance; and regression analysis including analysis of messy data; non-linear regression; logistic and weighted regression; diagnostics and model building; emphasis on concepts; computing and interpretation. *Prerequisite:* STAT 652.

University and Program Resources

University Resources

Office of Admissions

Students wishing to apply for acceptance into the graduate FSTC program at Texas A&M University are directed to the Office of Graduate Admissions at the website <http://admissions.tamu.edu/graduate/>. Methods of admission, required documentation necessary for application for admission, application deadlines and procedures, fellowship and grant application opportunities are available from the Office of Graduate Admission.

Office of Graduate and Professional Studies (OGPS)

The Office of Graduate and Professional Studies is located in the Commons Building (Rm. 001), and is responsible for oversight of student degree requirements management and student degree completion. Graduate students will interact with OGS personnel and systems in multiple ways throughout their degree, and students are advised to become familiar with OGS systems and deadlines so as to expedite the completion of required forms and documentation. In addition to degree audit, degree plan, research proposal, preliminary exams (Ph.D.) and final defense paperwork submission and processing, OGPS maintains the Thesis Office, responsible for assisting students in the proper production and formatting of their research thesis or dissertation. All students must pass thesis review and have their thesis or dissertation accepted by the Thesis Office prior to graduation. Updated thesis/dissertation submission guidelines, electronic submission procedures, and copyright information are located on the Thesis Office website at: <http://ogs.tamu.edu/current-students/thesis-dissertation/>.

Office of Research Compliance and Biosafety

The Office of Research Compliance and Biosafety (RCB) within the Division of Research serves as the administrative body within the TAMUS to provide oversight for all research activities. Responsibilities are varied, but include completion and logging of all research procedures and regulations training for investigators and students. Students conducting human subjects research, research on biological agents/pathogens, or involving the use of animals must submit to all project-specific required training and certification procedures as directed by the research advisor and RCB personnel.

Office of Research Compliance and Biosafety

750 Agronomy Road, Suite 2701

College Station, TX 77843-1186

979-458-1467

rcb.tamu.edu

International Student Services

The International Student Services (ISS) office serves as a resource to students of non-U.S.

citizenship, and are primarily functional in providing documentation to allow non-immigrant student visas for study at Texas A&M University. In addition, ISS personnel will coordinate with university admissions and payroll offices to complete admissions procedures and other administrative procedures once the student has been admitted and arrived on campus. The ISS office also offers students counseling services on issues related to immigration, employment, finance, medical insurance, adjusting to the U.S., and taxation.

International Student Services

1st Floor, Bizzell Hall East

TAMU 1226

College Station, TX 77843-1226

979-845-1824 (Current Student)

979-845-1151 (Prospective Student)

iss@tamu.edu

Office of Scholarships & Financial Aid

The Office of Scholarships & Financial Aid can assist students in identifying applicable sources of financial aid for supporting the costs of degree completion, and will assist the student in accepting financial aid received. Emergency and short-term loans for educational and living expenses may be available from the office; for more information visit the office at contact below.

Office of Scholarships & Financial Aid

The Pavilion, Rm. 200, Spence Street

TAMU 1252

College Station, TX 77843-1252

979-845-3236

financialaid@tamu.edu

Student Health Services & Insurance

Student Health Services on TAMU campus is responsible for assisting students in maintenance of health through a variety of services. Graduate assistants assigned to teaching or research assistantships (GTA, GRA) are identified as TAMU employees and thus receive employer contributions towards the cost of student health insurance. Students will also contribute to the cost of their medical/health insurance, in a pro-rated fashion, based on their status.

Students attending TAMU on fellowship or training grants will not be considered TAMU employees and must purchase medical insurance on their own, choosing their own insurance provider. Students should be certain that local physicians and medical professionals will accept their chosen insurance program for services. More information on medical insurance for TAMU students can be located at <http://www.tamuinsurance.com/>.

All students enrolling in TAMU under the age of 30 years will be required to submit proof of vaccination against bacterial meningitis as part of their application to TAMU. Students over 30 years old are not required to submit such proof. More information on vaccinations for incoming students can be found at shs.tamu.edu/immunizations.

Student Health Services
A.P. Beutel Health Center
TAMU 1264
College Station, TX 77843-1264
979-458-8316
shs.tamu.edu

University Housing

Texas A&M University has a variety of on-campus and campus-adjacent housing options for graduate students, in particular married students with families. Applications for such housing can be located at <http://reslife.tamu.edu>. In addition to on-campus housing, numerous apartment complexes and rental homes are available for students. These should be directly investigated by the student.

Department of Residence Life
Cain Hall Rm. B-140
College Station, TX 77843-1253
979-845-4744; 979-845-4745
housing@tamu.edu

Transportation Services

Graduate students wishing to drive a personal vehicle and park on campus must purchase a parking tag for a lot through Transportation Services. Students should visit transport.tamu.edu in order to register and pay for a parking tag, or a student can register for a tag at the Transportation Services Office counter in Koldus Hall. Parking sticker costs can be deducted from the student's monthly stipend if desired and student completes arrangements for monthly debit toward sticker cost.

Maps of parking lots available to students with associated sticker costs can be located at <http://transport.tamu.edu/maps.aspx>. Campus bus transit routes and pickup schedules can be obtained from <http://transport.tamu.edu/transit.aspx>. Information on student's use of bicycle for personal transportation can be located at <http://transport.tamu.edu/bicycles/regulations.aspx>. Students wishing to utilize a bicycle for transportation should check regulations regarding bicycle registration and policies concerning the transportation of abandoned bicycles to university surplus.

Transportation Services Customer Assistance Center
108 Koldus Hall
College Station, TX 77843-1250
979-845-5846
parking@tamu.edu

New Student Orientation

Office of Graduate and Professional Studies Orientation

The Office of Graduate and Professional Studies offers at the beginning of every Fall semester a new student orientation for incoming graduate students at Texas A&M University. There is no cost for attending the orientation, and all graduate students are encouraged to attend, but are not university required. However, the graduate student should contact their graduate advisor(s) to determine whether their attendance is expected. Registration for the orientation can be found at: <http://ogs.tamu.edu/incoming-students/new-student-orientation/>. International students should consult this website for specialized instructions regarding orientation of non-U.S. citizens as incoming graduate or professional students.

Department of Nutrition and Food Science Orientation

In addition to OGPS orientation provided at the beginning of the Fall semester, the Department of Nutrition and Food Science will offer an orientation to new graduate students in the Nutrition or Food Science and Technology degree programs. This orientation will provide graduate students with department and academic program-related information, expectations for student academic performance, policies and regulations regarding student completion of coursework, required documentation and timely submission for completion of degree requirements, and completion of thesis or dissertation research. This orientation is mandatory for all incoming graduate students without exception, and documentation of circumstance preventing student attendance must be provided to the Associate Head for Academic Programs (Stephen Talcott, Ph.D.) for absence excuse to be granted. Scheduling of the orientation will be coordinated through the Department of Nutrition and Food Science and students will be informed of the orientation date, time, and location by email through the departmental student listserve.

English Language Proficiency Requirements for Incoming Students

English Language Proficiency (ELP) Requirements

Incoming graduate students who are not coming from a nation where English is the native language must pass some level of English language proficiency (ELP). Texas A&M University recognizes two levels of English proficiency for graduate students: English Proficiency Verified and English Proficiency Certified. Graduates demonstrating ≥ 80.0 on the online version of the TOEFL exam, ≥ 6.0 on the IELTS, a GMAT of at least 22, or a GRE Verbal score of at least 400 (146 on new scoring system) will be considered to have met the English Proficiency Verified level of ELP.

Any graduate student wishing to be considered for a graduate teaching assistantship, or applying for any type of teaching-type position must also be English Proficiency Certified before they can be assigned to any such position. Texas A&M University recognizes three primary mechanisms of attaining English Proficiency Certification for graduate students:

1. The student scores at least an 80 on each section of the English Language Proficiency Examination (ELPE).
2. The student obtains a grade of either A or B in English Language Institute courses at the 300-level or higher.
3. The student requests and receives an alternative form of certification. For example, students possessing a 4-year degree from a U.S. institution will automatically qualify for English Language Certification by virtue of their degree. However, the degree must be a 4-year degree; degrees expected to require less than 4 years are not eligible (e.g., M.S.).

Any student wishing to be considered for English Proficiency Verification or Certification should coordinate submission of documentation with their graduate advisor(s) and the departmental administration for collection and submission of appropriate forms and supporting documentation.

For all graduate students, ELP requirements must be completed prior to request for the final examination and defense of their degree. For Ph.D. students, ELP requirements must be completed successfully before the student may register for preliminary/comprehensive examination as a precursor to admission to candidacy.

Students seeking more information are directed to the Texas A&M University Graduate Catalog for more information regarding ELP completion requirements, scheduling of ELPE, English Language Institute offerings, and appropriate procedures for ELP completion.

Registration for Courses

Class Registration General Policies

General Policies for Course Enrollment: As a general rule, a graduate student should consult with his/her graduate advisory committee members when selecting and registering for specific sections of desired classes, as well as for building a schedule of classes to be completed. In some instances, a new graduate student may be required by their academic advisor(s) to complete some form of remedial training (e.g., completion of upper-level undergraduate courses as prerequisites for graduate course enrollment). Again, these should be coordinated with the student's graduate advisor(s) in order to ensure the student makes measured and steady progress towards completion of graduate degree requirements while selecting courses that will be of benefit in knowledge development and research planning/completion.

Full-Time Student Enrollment: A graduate student is considered to be a full-time enrolled student if enrolled for a minimum of:

- 9 semester credit hours for each of the academic semesters (Fall, Spring);
- 6 semester credit hours for the 10-week summer term, or;
- 3 semester credit hours each for each of the two 5-week summer terms.

Any student on an assistantship should check with their graduate advisor to determine what impact enrollment for any number of credits less than those given here will have on their financial stipend, tuition support, etc.

A student may enroll for up to 15 semester credit hours during the Fall or Spring semesters, and up to 12 semester credits during the 10-week summer term. Up to 9 hours for each of the 5-week summer terms may be enrolled. Any student wishing to take more graduate coursework must submit request and petition for exception to the OGAPS.

Continuous Enrollment: Once a student has begun their degree program, that student must remain in full-time enrollment until all degree requirements are fulfilled. Subject to university requirements, this requirement for full-time continuous enrollment may be fulfilled through the use of *in absentia* or other registration status classifications. Any student needing to register for classes/academic credits *in absentia* should consult the Texas A&M University Graduate Catalog for policies and definitions of *in absentia*-appropriate conditions for student enrollment purposes.

The Doctor of Philosophy Degree

General Expectations

The Doctor of Philosophy (Ph.D.) indicates the student possesses comprehensive knowledge regarding the field of academic study and research related to his/her work at Texas A&M University. The degree is not granted solely on the completion of academic coursework, or the completion of the minimum credit hour requirements, though these are required towards the degree completion. This degree should be indicative of a student's mastery of the fundamental concepts and knowledge of the field of food science and technology, with intense depth of knowledge in those fields directly related to their dissertation research interests/foci. There are several significant hurdles which must be successfully negotiated before the degree may be granted, and it is incumbent upon the student to remain in close contact with their graduate advisory committee members to assure proper progress and timely completion of research and academic requirements. No graduate student should be allowed by their graduate committee membership to become disengaged with the completion of their degree and fall off track with respect to satisfying university and departmental degree requirements. It is incumbent upon the student and committee membership to remain in close communication and collaboration to avoid such occurrences, as they are both destructive to the student's academic progression and faculty/student collegiality.

More information on degree requirement and completion may be gained from the Texas A&M University Graduate Catalog and from the responsible officials within the Department of Nutrition and Food Science, faculty ad-loc'ed departments, and OGPS.

Steps to Fulfillment of the Doctoral Degree Requirements

(Adapted from Texas A&M University Graduate Catalog, 2012-2013 Edition)

Step	Procedure	When to Complete
1	Student meets with departmental graduate advisor to plan course of study and class enrollment for first semester.	Prior to first semester registration close.
2	Establishment of the graduate advisory committee membership and submission of degree plan.	Prior to any deadlines imposed by the college or department, no later than 90 days prior to the preliminary examination.
3	Completion of all english language proficiency requirements.	Prior to the preliminary examination.
4	Completion of the preliminary examination.	At least 14 weeks prior to scheduled date of final examination and dissertation defense.
5	Submission of research proposal to OGAPS.	No more than 25 working days prior to submission of Request for Final Examination form.
6	Completion of all residency requirements.	Prior to submission of request to schedule final examination and defense.
7	Apply for degree and pay graduation fees.	During the first week of the anticipated final semester, according to OGAPS calendaring deadlines.
8	Submit request for permission to hold final examination to OGAPS.	No less than 10 working days prior to requested final exam/defense date.
9	Upload of one copy of committee-approved dissertation to TAMU Thesis Clerk in pdf format with submission of signed approval form to Thesis Clerk Office.	According to OGAPS deadlines for relevant semester graduation.
10	Graduation; arrangement of cap and gown.	In cooperation and according to timelines of University Bookstores.

Specific Guidelines and Procedures for Degree Completion

Graduate Advisory Committee Selection

The student should consult first with their intended graduate advisory chair(s) to determine recommended committee members, or with the head of the Department of Nutrition and Food Science (or designated representative) to begin the process of appointing a faculty advisory committee. Texas A&M University policies mandate at least four (4) members of the graduate faculty be selected and appointed to any Ph.D. advisory committee, and at least one member of the committee must be from outside of the home department of the student. *All FSTC students should consider their primary academic department affiliation to be the Department of Nutrition and Food Science for purposes of selecting a faculty member designated as the non-departmental committee member.* A committee is then populated at the direction of the graduate committee chair, and will be formalized through the process of student degree plan development and submission to OGPS.

It is the responsibility of the committee chair to call all meetings of the graduate advisory committee, and meetings are expected to occur at least annually, but may take place as often as is felt necessary. The committee chair and committee members will be responsible for guidance and oversight of the student's timely and successful completion of all university-required procedures (including but not limited to: degree plan completion, preliminary examination, final dissertation preparation and defense). Additionally, should the committee identify serious deficiency in the student's completion of degree requirements or other deficiencies that will impair ability to complete the degree, it is the responsibility of the committee to take necessary action to rectify the concerns or to recommend action be taken to the departmental administration and OGAPS.

Academic Degree Plan Submission

All students, in consultation with their graduate advisory committee membership, will submit a degree plan that outlines all coursework to be completed towards completion of the Ph.D. degree. The degree plan may also include necessary description of research satisfying the committee's expectations of the degree (although this is most commonly submitted as a research proposal). The degree plan must fulfill university and departmental requirements for course selection and must be submitted *at least 90 days prior to scheduling of the student's preliminary examination*. Course credit hour requirements for the Ph.D. must be adhered to and the degree plan will be filed electronically by the student through the OGAPS at: ogsdpss.tamu.edu. Following submission and initial audit, the Department of Nutrition and Food Science will perform an initial review and then direct the degree plan to the chair(s) of the student's graduate committee and then to its membership.

The student's degree plan should be filed within the first four semesters of the student's arriving and beginning the Ph.D. degree, prior to the beginning of their fifth academic semester. The degree plan may be amended as needed by the student by the filing of petition to OGPS detailing what course(s) are to be added or removed. Petitions must be approved by committee members (either physically or digitally via the OGAPS submission system) before they will be considered for degree plan revision. However, no alterations to the student's degree plan may be

requested once request for final examination has been submitted to OGPS.

Research Proposal

All graduate students seeking either the Ph.D. or thesis-bearing M.S. in Food Science and Technology are required to complete and submit for approval a research proposal outlining the topic and focus of their graduate research program. The research proposal should be completed in collaboration with their research director(s) and should be initiated as soon as the student is reasonably able to identify the objective(s) and general methods of research to be employed. The proposal must be approved by all members of the student's graduate advisory committee and signatures on appropriate documentation must be obtained before the proposal can be submitted to the OGPS. In addition to graduate advisory committee signatures, the Head of the Department of Nutrition and Food Science must also sign the research proposal submission form prior to its submission to OGPS.

At a minimum, the research proposal should provide a strong review of the pertinent literature surrounding the research problem(s) identified as being of interest to the student and research advisor. This can include an explanation of the justification or need for such research, the fundamental biological/physical/chemical processes or phenomena of relevance to the proposed research, and the current state of scientific knowledge. A listing of concise objectives, research hypotheses, and a description of intended or necessary research methods should also be included. The student should whenever possible cite previously completed research or other credible sources of information that supports the proposal's reasoning or development, and the student should choose and uniformly apply a style with which to present in-text bibliographic citations and full reference bibliographic material at the proposal's end. The significance and importance of thoughtful construction of the research proposal cannot be overstated, as it forms the framework for later development of the student's dissertation or thesis, and can be viewed by some as a minimal criteria for student degree completion (although the proposal in itself does not represent a contract between student and faculty).

The research proposal must be submitted and approved at least 15 working days prior to the student submitting the Request for Final Examination. The successful completion and approval of the research proposal is one requirement for a student's admission to Ph.D. candidacy.

Preliminary Examination

General Policies & Expectations: While the University allows departments or programs to design preliminary examinations unique to their program and schedule them on the timeline they deem most appropriate, **the completion of a preliminary examination is a requirement for all students working towards the Ph.D.** The committee should assure itself through completion of the preliminary examination that the student has demonstrated comprehensive mastery of the field of food science and the capacity to carry out bibliographical research, utilizing scientific literature and other relevant, reliable citable sources of research or technical data. A student will be considered to have successfully passed the preliminary examinations if no more than one committee member provides a negative/failing vote at the close of the oral examination on the Report of Doctoral Preliminary Examination form.

Scheduling of Preliminary Examinations: The student, in cooperation with their graduate advisory committee membership, should schedule the completion of preliminary examinations no earlier than a date for which the student is within 6 credit hours of completing all formal coursework for their degree (only variable credit courses may yet remain for completion, including 681, 684, 690, 691, and 692 courses). The student must be enrolled for at least one semester credit in the term during which the preliminary examination is scheduled. The exam should be completed and a report of examination results be submitted to OGPS no less than 14 weeks to the final examination and dissertation defense date.

Format of Examination: Preliminary examinations are comprised of both written and oral examinations of the student, with the written examination preceding the oral examination. TAMU policies allow a committee member to waive their written examination, but an oral examination cannot be exempted by a faculty committee member. Committee members may collaborate to submit a joint written exam. The timeline for completion of all examinations, from the beginning of the first written examination to the scheduling of the oral examination, must not exceed three weeks. Within the FSTC curriculum, the graduate advisory committee members retain control over the manner in which the preliminary examination is administered, provided the committee's procedures are in adherence with university policies. Should a department-wide common written examination be instituted for students in FSTC (not currently in existence), this policy on scheduling of written and oral examinations within a 3 week timeframe will be rendered non-applicable.

Reporting of Results: Within 10 working days of the student completing the preliminary examination, two forms (completed and bearing original signatures of approved committee members) must be submitted to OGAPS:

1. Report of Doctoral Preliminary Examination form
2. Preliminary Examination Checklist form

These forms may be obtained from the OGPS website (ogs.tamu.edu) prior to the scheduled date of the oral examination.

Failing the Preliminary Examination: Should a student receive more than one failing vote by their committee members at the end of the preliminary examination, that student will fail the preliminary examination. Should the department head and the graduate committee members agree (with no more than one committee member dissenting), a student may be given a re-examination after adequate time has passed in order for the student to prepare, although the graduate committee is not obligated to offer the student re-examination. This time period may vary but may be anywhere from a semester to six months, but should not span an entire academic or calendar year. This period is for the student's benefit, to develop knowledge in areas where they were previously deficient, enroll in academic courses to help strengthen command over topic fields, and progress towards preparing for the re-examination. A second examination will be conducted by the student's committee in similar fashion as that of the first examination, and will subject to the same rules imposed by the university and department as was the first. **Should**

a student fail their preliminary examination, and a second examination is also failed (if offered), the graduate advisory committee members will make recommendation to the Department of Nutrition and Food Science as to the appropriate course of action related to the student's dismissal from the Ph.D. program and the formation/awarding of a M.S. degree.

Steps to Completing the Preliminary Examination

(Adapted from Texas A&M University Graduate Catalog, 2012-2013 Edition)

Step	Procedure	When to Complete
1	Establish graduate advisory committee and submit a degree plan to OGPS.	Prior to deadlines set by department and college (if applicable), no later than 90 days prior to preliminary examination date.
2	Complete all english language requirements (if applicable) and/or coursework on degree plan.	Prior to preliminary examination.
3	Student and committee chair review and complete preliminary examination checklist form for appropriateness of scheduling examination.	Several weeks prior to proposed examination date. A completed checklist must be signed by graduate committee chair & department head.
4	Student confirms acceptability of desired dates for written and oral examinations with committee members.	Several weeks prior to proposed preliminary examination date.
5	Student prepares and submits all necessary petitions needed after review of eligibility requirements.	At least 3 weeks prior to proposed examination start date. Petitions should be approved by graduate committee members, department head, and OGPS.
6	Department announces date of preliminary examination.	No mandatory date is given, but must be approved by department head.
7	Committee chair submits completed Report of Preliminary Examination form to OGPS with original signatures and votes of committee members.	No more than 10 working days following the oral examination completion, and no later than 14 weeks prior to final examination and dissertation defense.
8	OGPS notifies student and graduate committee chair of deficiencies and needs for correction/rectification.	Upon receipt of Report of Preliminary Examination form.

Ph.D. Candidacy

Once a doctoral student has completed the following requirements, he/she may be admitted to candidacy for the PhD:

1. All coursework filed with the most current form of the student's degree plan has been completed with the exceptions of remaining 681, 684, 690, and 691 courses.
2. The student has maintained an overall 3.0 GPA, a Degree Plan GPA of at least 3.0, and has not received any grade lower than a C on any degree plan-listed course.
3. The student has successfully passed both written and oral preliminary examinations.
4. The student has submitted an approved research proposal.
5. The student has met all residence requirements.

No student may submit a Request for Final Examination and Dissertation Defense without first being admitted to candidacy.

Dissertation

The dissertation document must be an original work of the student and should report in detail the methodologies, findings, analysis, and interpretation of all data collected towards completion of the PhD research directed by the student's committee. It should also present a comprehensive review of pertinent scientific literature, relevant to the student's research and academic preparation. It should be prepared in accordance with TAMU OGAPS guidelines for thesis and dissertation preparation and formatting (thesis.tamu.edu) and should be submitted to the University Thesis Clerk's Office as a PDF file following the student's defense of the dissertation to the committee.

The student must adhere to all university deadlines for requesting the defense of the dissertation and submitting it to OGAPS for processing and approval. Additionally, the policy of Texas A&M University is that the dissertation should be disseminated in as near a final form as possible to the committee with adequate time for its review prior to the defense being scheduled. Should a dissertation be returned as being unacceptable by the Thesis Clerk's Office, the student will be made to make necessary corrections and the process for the dissertation's approval will begin anew at the point of committee review and approval. The student will schedule a new defense and submit the corrected document for approval by the Thesis Clerk's Office.

The student is required to adhere to all university policies on academic integrity regarding the preparation of the dissertation, and in no instance will a dissertation be approved if it's found that a student has presented fabricated or plagiarized data or literature. These represent the most outrageous of infractions a student may commit and are indicative of lack of integrity and the student's not being worthy to bear the PhD. While it is increasingly difficult to not prepare a written document that is not unlike other scientific literature, the student is expected to structure their thoughts and analyses in such a manner as to provide adequate citation of previous research while simultaneously providing clear, reasoned, defensible arguments for analysis and interpretation of research findings. The dissertation should be completed with cooperation by the graduate committee chairperson or other responsible faculty member, and the student is encouraged to begin the process of dissertation development as soon as is reasonable so that adequate effort and attention may be given to its completion.

While there is no minimum number of pages that must be included in the body of the dissertation, the student should consult with faculty advisors and work to be comprehensive in their review of literature. Additionally, the student may include an Appendix in which additional forms, documents, data presentations, statistical analysis outputs, etc., may be included for the benefit of the student or faculty review, or for the sake of producing a record of completed activities. Such additions should be completed at the behest of the faculty advisors or by the student's suggestion as approved by faculty advisors.

Final Examination and Defense of Dissertation

The Ph.D. candidate may apply for a final examination and defense of dissertation after admission to candidacy and within university guidelines for scheduling of the final exam. A final defense should not be scheduled/requested until all research has been completed to committee satisfaction and a dissertation has been produced and edited to a state of being nearly in its final form and ready for committee review. At the very minimum, a defense should not be scheduled until the chair of the student's graduate committee has approved such a procedure. Scheduling guidelines are as follows:

- The defense cannot be scheduled less than 14 weeks since submission of results of the preliminary examination to OGPS.
- The defense must be scheduled no less than 25 days since submission of the research proposal to OGPS.
- The student has a degree plan on file and all petitions to change the degree plan have been approved by OGPS.
- The request for final examination must be submitted at least 10 business days/working days prior to the anticipated date of defense.
- All English Language Institute (ELI) requirements have been successfully passed by the student, as applicable.

While non-committee members may be invited to attend the final examination and dissertation defense (with agreement by the candidate and the committee), once questioning of the student has been completed, visitors are to be excused and the remainder of the defense remain closed. A student will be said to pass the final examination if they receive no more than one failing vote by a committee member. The final defense and examination may likely focus on the student's research and aligned topics, though there is no restriction against committee members discussing topics outside the immediate research completion.

Final defenses are generally very exciting but also stressful events. The student has successfully negotiated all other hurdles and is ready to complete the last significant process towards completion of the terminal degree. However, some recommendations are in order:

1. Students should not seek to schedule a defense unless they have received positive feedback from their graduate advisory chair that the defense is warranted and that research has been completed to the faculty's satisfaction.
2. The student should not schedule the defense until the dissertation document has undergone review and editing and is in a form nearly ready for submission to the university, with appropriate formatting and presentation of data included.
3. The student has consulted with all faculty members on their committee to choose an

available date for the defense that allows for adequate time to review the dissertation by the committee membership.

4. The student should confirm all other requirements are met and satisfied prior to scheduling the defense/requesting the final examination. The student should confirm that OGAPS possesses all necessary documentation and approvals, and that all other departmental requirements are met.
5. The student should consult with the faculty committee chair or research director regarding any special needs for special embargo of the dissertation for the sake of journal publication or realizing intellectual property.

Additionally, it is a common tradition for students to provide food and beverages for the committee members for the examination session. A student should consult with the committee membership to determine any special dietary needs of the faculty and what expectations the faculty have in terms of the types of food that are desired and how elaborate the selection of food/beverages should be. Further, the student should spend time preparing for possible questions and challenges to the dissertation, anticipating possible concerns and preparing responses. This will not remove the anxiety completely, but can help minimize it by giving an added level of preparedness. Finally, a student should consider the defense a formal event and be dressed in no less than formal business attire. This is both a show of respect for the gravity of the occasion as well as outward indication of the student's taking the defense seriously.

The Master of Science Degree

General Expectations

The Master of Science (M.S.) indicates the student has completed an original and novel learning and/or research experience in the field of food science and technology. The student should at the degree conclusion be capable of demonstrating advanced knowledge in one of the sub-disciplines of food science beyond the baccalaureate degree. For students completing the thesis-option M.S. degree, the degree is not granted solely on the completion of academic coursework, or the completion of the minimum credit hour requirements (see above), though these are required towards the degree completion. There are several significant hurdles which must be successfully negotiated before the degree may be granted, and it is incumbent upon the student to remain in close contact with their faculty advisors in order to help assure proper progress and timely completion of research and academic requirements. No student should be allowed by their graduate committee membership to become disengaged with the completion of their degree and fall off track with respect to satisfying university and departmental degree requirements. It is incumbent upon the student and committee membership to remain in close communication and collaboration to avoid such occurrences, as they are both destructive to the student's academic progression and faculty/student collegiality.

More information on degree requirement and completion may be gained from the Texas A&M University Graduate Catalog and from the responsible officials within the Department of Nutrition and Food Science, faculty ad-loc'ed departments, and OGPS.

Steps to Fulfillment of the M.S. Degree Requirements

(Adapted from Texas A&M University Graduate Catalog, 2012-2013 Edition)

Step	Procedure	When to Complete
1	Student meets with departmental graduate advisor to plan course of study and class enrollment for first semester.	Prior to first semester registration close.
2	Establishment of the graduate advisory committee membership and submission of degree plan.	Prior to any deadlines imposed by the college or department, no later than 90 days prior to the final thesis or oral defense.
3	For thesis-requiring degree programs, submit thesis research proposal to OGPS.	At least 25 working days prior to submission of Request for Final Examination form.
4	Apply for degree and pay graduation fees.	During first week of final semester.
5	Confirm completion of all english language proficiency requirements and degree plan coursework completion.	Several weeks prior to submission of Request for Final Examination form to OGPS.
6	Completion of all residency requirements.	Prior to submission of request to schedule final examination and defense.
7	Submit Request for Final Examination form to OGPS.	At least 10 working days prior to scheduled thesis defense date.
8	Upload of one copy of committee-approved dissertation to TAMU Thesis Clerk in pdf format with submission of signed approval form to Thesis Clerk Office.	According to OGPS deadlines for relevant semester graduation.
9	Graduation; arrangement of cap and gown.	In cooperation and according to timelines of University Bookstores.

Specific Guidelines and Procedures for Degree Completion

Graduate Advisory Committee Selection

The student should consult first with their intended graduate advisory chair(s) to determine

recommended committee members, or with the head of the Department of Nutrition and Food Science (or designated representative) to begin the process of appointing a faculty advisory committee. Texas A&M University policies mandate at least three (3) members of the graduate faculty be selected and appointed to any PhD advisory committee, and at least one member of the committee must be from outside of the home department of the student and graduate committee chair-person. *All FSTC students should consider their primary academic department affiliation to be the Department of Nutrition and Food Science for purposes of selecting a faculty member designated as the non-departmental committee member.* A committee is then populated at the direction of the graduate committee chair, and will be formalized through the process of student degree plan development and submission to OGAPS.

It is the responsibility of the committee chair to call all meetings of the graduate advisory committee, and meetings are expected to occur at least annually, but may take place as often as is felt necessary. The committee chair and committee members will be responsible for guidance and oversight of the student's timely and successful completion of all university-required procedures (including but not limited to: degree plan completion, final thesis preparation and defense [in the case of a thesis-yielding degree program]). Additionally, should the committee identify serious deficiency in the student's completion of degree requirements or other deficiencies that will impair ability to complete the degree, it is the responsibility of the committee to take necessary action to rectify the concerns or to recommend action be taken to the departmental administration and OGPS.

Academic Degree Plan Submission

All students, in consultation with their graduate advisory committee membership, will submit a degree plan that outlines all coursework to be completed towards completion of the M.S. degree. The degree plan may also include necessary description of research satisfying the committee's expectations of the degree (although this is most commonly submitted as a research proposal). The degree plan must fulfill university and departmental requirements for course selection and must be submitted within two semesters of the student beginning the M.S. degree and should be completed prior to the start of the student's third academic semester. Course credit hour requirements for the M.S. must be adhered to and the degree plan will be filed electronically by the student through the OGPS at: ogsdpss.tamu.edu. Following submission and initial audit, the Department of Nutrition and Food Science will perform an initial review and then direct the degree plan first to the chair of the student's graduate committee and then to its membership.

The degree plan may be amended as needed by the student by the filing of petition to OGPS detailing what course(s) are to be added or removed. Petitions must be approved by committee members (either physically or digitally via the OGPS submission system) before they will be considered for degree plan revision. However, no alterations to the student's degree plan may be requested once request for final examination or final examination exemption has been submitted to OGPS.

Research Proposal

Students seeking the thesis-bearing M.S. in FSTC are required to complete and submit for approval a research proposal outlining the topic and focus of their graduate research program.

The research proposal should be completed in collaboration with their research director(s) and should be initiated as soon as the student is reasonably able to identify the objective(s) and general methods of research to be employed. The proposal must be approved by all committee members and signatures on appropriate documentation must be obtained before the proposal can be submitted to the OGPS. In addition to graduate advisory committee signatures, the Head of the Department of Nutrition and Food Science must also sign the research proposal submission form prior to its submission to OGPS.

At a minimum, the research proposal should provide a strong review of the pertinent literature surrounding the research problem(s) identified as being of interest to the student and faculty advisor. This can include an explanation of the justification or need for such research, the fundamental biological/physical/chemical processes or phenomena of relevance to the proposed research, and the current state of scientific knowledge. A listing of concise objectives, research hypotheses, and a description of intended or necessary research methods should also be included. The student should whenever possible cite previously completed research or other credible sources of information that supports the proposal's reasoning or development, and the student should choose a style in which to present in-text bibliographic citations and full reference bibliographic material at the proposal's end. The significance and importance of thoughtful construction of the research proposal cannot be overstated, as it forms the framework for later development of the student's dissertation or thesis, and can be viewed by some as a minimal criteria for student degree completion (although the proposal in itself does not represent a contract between student and faculty).

The research proposal must be submitted and approved at least 15 working days prior to the student submitting the Request for Final Examination.

Thesis

The thesis document must be an original work of the student and should report in detail the methodologies, findings, analysis, and interpretation of all data collected towards completion of research directed by the student's committee. It should also present a comprehensive review of pertinent scientific literature, relevant to the student's research and academic preparation. It should be prepared in accordance with TAMU OGPS guidelines for thesis and dissertation preparation and formatting (thesis.tamu.edu) and should be submitted to the University Thesis Clerk's Office as a PDF file following the student's defense of the dissertation to the committee.

The student must adhere to all university deadlines for requesting the defense of the thesis and submitting it to OGPS for processing and approval. Additionally, the policy of Texas A&M University is that the thesis should be disseminated in as near a final form as possible to the committee with adequate time for its review prior to the defense being scheduled. Should a thesis be returned as being unacceptable by the Thesis Clerk's Office, the student will be made to make necessary corrections and the process for thesis approval will begin anew at the point of committee review and approval. The student will schedule a new defense and submit the corrected document for approval by the Thesis Clerk's Office.

The student is required to adhere to all university policies on academic integrity regarding the preparation of the thesis, and in no instance will a thesis be approved if it's found that a student has presented fabricated or plagiarized data or literature. These represent the most

outrageous of infractions a student may commit and are indicative of lack of integrity and the student's not being worthy to bear the M.S. degree. While it is increasingly difficult to not prepare a written document that is not unlike other scientific literature, the student is expected to structure their thoughts and analyses in such a manner as to provide adequate citation of previous research while simultaneously providing clear, reasoned, defensible arguments for analysis and interpretation of research findings. The thesis should be completed with cooperation by the graduate committee chairperson or other responsible faculty member, and the student is encouraged to begin the process of development as soon as is reasonable so that adequate effort and attention may be given to its completion.

While there is no minimum number of pages that must be included in the body of the thesis, the student should consult with faculty advisors and work to be comprehensive in their review of literature. Additionally, the student may include an Appendix in which additional forms, documents, data presentations, statistical analysis outputs, etc., may be included for the benefit of the student or faculty review, or for the sake of producing a record of completed activities. Such additions should be completed at the behest of the faculty advisors or by the student's suggestion as approved by faculty advisors.

Final Examination and Thesis Defense

Thesis Defense & Final Examination: The graduate student may apply for a final examination and defense of thesis within university guidelines for scheduling of the final exam. A final defense should not be scheduled/requested until all research has been completed to committee satisfaction and a thesis has been produced and edited to a state of being nearly in its final form and ready for committee review. At the very minimum, a defense should not be scheduled until the chair of the student's graduate committee has approved such a procedure. Scheduling guidelines are as follows:

- The defense cannot be scheduled less than 14 weeks since submission of results of the preliminary examination to OGPS.
- The defense must be scheduled no less than 25 days since submission of the research proposal to OGPS.
- The student has a degree plan on file and all petitions to change the degree plan have been approved by OGPS.
- The request for final examination must be submitted at least 10 business days/working days prior to the anticipated date of defense.
- All English Language Institute requirements have been successfully passed by the student, as applicable.

While non-committee members may be invited to attend the final examination and dissertation defense (with agreement by the candidate and the committee chair), once questioning of the student has been completed, visitors are to be excused and the remainder of the defense remain closed. A student will be said to pass the final examination if they receive no more than one failing vote by a committee member. The final defense and examination may likely focus on the student's research and aligned topics, though there is no restriction against committee members discussing topics outside the immediate research completion.

Final defenses are generally very exciting but also stressful events. The student has

successfully negotiated all other hurdles and is ready to complete the last significant process towards completion of the terminal degree. However, some recommendations are in order:

1. Students should not seek to schedule a defense unless they have received positive feedback from their graduate advisory chair that the defense is warranted and that research has been completed to the faculty's satisfaction.
2. The student should not schedule the defense until the thesis document has undergone review and editing and is in a form nearly ready for submission to the university, with appropriate formatting and presentation of data included.
3. The student has consulted with all faculty members on their committee to choose an available date for the defense that allows for adequate time to review the dissertation by the committee membership.
4. The student should confirm all other requirements are met and satisfied prior to scheduling the defense/requesting the final examination. The student should confirm that OGAPS possesses all necessary documentation and approvals, and that all other departmental requirements are met.
5. The student should consult with the faculty committee chair or research director regarding any special needs for special embargo of the dissertation for the sake of journal publication or realizing intellectual property.

Additionally, it is a common tradition for students to prepare some meal or food for the committee membership for the examination session. A student should consult with the committee membership to determine any special dietary needs of the faculty and what expectations the faculty have in terms of the types of food that are desired and how elaborate the selection of food/beverages should be. Further, the student should spend time preparing for possible questions and challenges to the dissertation, anticipating possible concerns and preparing responses. This will not remove the anxiety completely, but can help minimize it by giving an added level of preparedness. Finally, a student should consider the defense a formal event and be dressed in no less than formal business attire. This is both a show of respect for the gravity of the occasion as well as outward indication of the student's taking the defense seriously.

Final Examination Exemption: A thesis-option M.S. student possessing a degree plan GPR of 3.50 or higher, with the approval of the graduate committee membership and department head, may petition for an exemption of the final examination. This does not absolve the student of the requirements for production, submission, and approval of the thesis document, and the petition should be submitted during the same semester in which the student intends to submit the thesis to committee members and OGPS.

Non-Thesis Option M.S. Final Examination: Students pursuing the non-thesis option of the M.S. program must complete a comprehensive final examination, designed by the membership of the student's graduate advisory committee. It may include both written and oral components, and cannot be scheduled prior to the mid-point of the semester in which it occurs if any component of the examination relies on the student's knowledge of courses in progress at that point.

Other Significant Procedures and Policies

Student Travel for University Business

Scientific Meetings: All students traveling to a scientific meeting for the purpose of presenting research findings are subject to all TAMU policies on the travel of university employees regarding proper expenditure of funds, retention and submission of original receipts from expenses for funds reimbursement, etc. The student should coordinate with his/her graduate advisor in order to determine sources of funding that may be applied to offset the costs of travel. For students whose graduate committee chairperson or research advisor is not adloc'ed within the Department of Nutrition and Food Science, the student should also check with the relevant departmental officers to determine appropriate procedures for travel scheduling and costs reimbursement for that department.

Students will be expected to submit travel expense reports within the Concur system and should coordinate setting up an account within Concur so as to allow for proper travel request and expense report submission. Requests for travel of any nature should be submitted via Concur prior to the travel date and must contain all critical information designated by the Concur system in according with TAMU System policies.

Travel for Research or Outreach Activities: Students traveling for the purposes of collecting research data or conducting various forms of training or outreach are subject to TAMU System policies for travel similar to those enforced for travel to present research findings at scientific meetings. All travel requests and expense reports must be submitted through Concur and should be in timely fashion according to directives of the Department of Nutrition and Food Science as well as any other academic departmental unit as needed.

International Travel: In the event that international travel is deemed worthwhile or necessary, the student should collaborate with departmental officers and other university offices to ensure that all necessary procedures are satisfactorily completed prior to the dates of travel. The student should confirm with their research advisor any special needs or instructions for preparation for travel. Travel requests for international travel must be submitted a minimum of 30 days prior to the anticipated date of departure through Concur and must indicate that international travel is to occur. A student is responsible for the maintenance of a valid passport, and in the event that visa documentation is also required for entry into the destination country, the student is responsible for obtaining such paperwork. The research or academic faculty advisor may be contacted to provide assistance in obtaining visa paperwork, but the responsibility will rest upon the student.

Travel Financial Assistance Application: Students traveling for the purpose of presenting research findings may apply for financial assistance from the Department of Nutrition and Food Science, in addition to travel assistance opportunities offered by the College of Agriculture and Life Sciences (COALS) and university offices. A copy of the student's submitted and accepted abstract of research is required to accompany the application for funding, except in the instance where the abstract approval has not been received by the meeting sponsor. In this event, a copy

of the submitted abstract must still be attached to the application, with an indication of the anticipated date of notification of abstract decision by the meeting decision. The student must obtain approval of their faculty advisor for the submission, indicated by signature of the faculty advisor. Funds will be dispersed to students based upon availability of funds and numbers of students applying for travel assistance within a calendar year.

Any student receiving travel assistance must acknowledge the receipt of such funds in an appropriate manner on the research poster or presentation, typically in an Acknowledgements portion of the presentation/poster. The student must include the following language in their acknowledgements of funding for research/travel, etc.:

Financial travel assistance was received by the Department of Nutrition and Food Science, Texas A&M University, College Station, TX.

Representatives of Texas A&M University: Regardless of the destination or reason(s) for travel, a graduate student is a representative of Texas A&M University as well as the Food Science and Technology program. The student is expected to act with integrity and not compromise the reputation of the program and university through word or action.

Departmental Poster Plotter Utilization

The Department of Nutrition and Food Science maintains a dedicated poster printer for the production of high quality research or training posters. The department's policy is that a student may print one (1) poster per calendar year at no cost to the student or faculty advisor for the presentation of data or other information. Further information on the guidelines for poster preparation, limitations on poster dimensions, and the plotter usage scheduling mechanism may be found on the department's home website, under the Graduate Students tab (nfs.tamu.edu). Students wishing to make use of this offering are required to submit scheduling form at least two business days prior to poster printing deadline, but are highly encouraged to submit the request sooner.

Departmental Affiliation Identification on Printed Materials and Presentations

As a graduate student in the FSTC graduate program within the Department of Nutrition and Food Science, the student's academic home department is the Department of Nutrition and Food Science. As such, all documents, research posters or presentations where the student must indicate their departmental affiliation must list the Department of Nutrition and Food Science as their primary affiliation, regardless of the departmental affiliation of their graduate committee chairperson(s). A student whose graduate committee or research advisor is not an ad-loc'ed member of the Department of Nutrition and Food Science may indicate dual affiliations on the document, poster, or presentation using an acceptable system of indicating affiliation, but the primary affiliation for the student must be the Department of Nutrition and Food Science, Texas A&M University, College Station, TX 77843-2253. A student should consult with their research/faculty advisor to determine appropriate affiliation reporting for all co-authors during preparation of the document, poster, or presentation.

Ownership of Research Original Data

As a graduate student in the Food Science and Technology program of Texas A&M University, ownership of any research data gathered during the completion of granted or sponsored research activities is the property of the State of Texas and Texas A&M University. The student must, upon completion of all research activities, turn over to the supervising research faculty member all data, records of research (including but not limited to: original research laboratory notebooks, original data-containing sheets, electronic media, etc.) for secure storage. While students may utilize a personal computer for the completion of statistical analysis or manuscript preparation from research and may store data on such a device, the original data should always be first captured in a paper format and then be entered into a spreadsheet for later analysis. These paper forms must *never leave* the laboratory or offices of the student and must be surrendered along with other original data-containing systems/media upon project completion. Per researcher desire, paper forms may be scanned to electronic file storage and destroyed once the successful scanning and file integrity has been verified.

Laboratory Notebook(s)

A student should invest in a laboratory notebook for the recording of original data, thoughts, observations gathered during research completion, and research methods. The notebook should not have any perforated pages and should be numbered sequentially. At a minimum, the student should sign and date each page as it's completed. This notebook should never leave the laboratory or student office, as the student is not the final owner of the data within the notebook. Alternatively, a student may obtain two notebooks, one that constitutes the primary laboratory notebook for the recording of methods and data, and the second to record significant observations, essential notes, data, or methods, that may be taken off campus. This practice is discouraged as it may result in a non-unified system of note-taking and data capture. The student is encouraged to consult with the research advisor as to proper procedures for data capture and lab notebook maintenance, as well as appropriate securing of lab notebooks. The research faculty may choose to provide a lab notebook to the student, and in such instances, this notebook is to be used by the student as the primary laboratory notebook.

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