

FOOD SCIENCE GRADUATE PROGRAM

Policies and Procedures

(1) Security and Keys

The Food Science building is open from 7:30 a. m. to 5:00 p. m. Monday through Friday. Laboratories, offices and classrooms should be locked whenever they are left unoccupied after 5:00 p. m., and on Saturdays, Sundays and holidays. Graduate students may be issued a building key fob that will unlock the outside doors, and keys for interior doors for their laboratory/office space. A \$15 deposit is required. To get a key:

1. Complete a Key Request Form
2. Obtain signature of a major professor
3. Give Key Request Form & \$15 deposit to Dale Wilson or Suprava Misra. Lost keys should be reported promptly. Replacement keys will require another \$15 deposit.
4. Get keys from Karl Hedrick, G14C Schaub, 513-2091 karl@unity.ncsu.edu

(2) Safety and Health

Outside doors to Schaub Hall should not be propped open when expecting visitors after the doors are locked for the evening or on weekends. When working in labs after regular hours, you should keep the laboratory or office door closed and locked. Laboratories should be locked whenever they are unoccupied. If you encounter unfamiliar visitors in your work area, ask if they need assistance and escort them to their destination. Seek assistance from a coworker if the situation warrants. Brochures on personal safety at NCSU are published by the Public Safety Office and crime prevention information is available at http://www2.ncsu.edu/ncsu/public_safety/psdhome.html. The NCSU Public Safety department responds to all emergencies at 911 from Campus phones. Public Safety department requests calls for non-emergencies go to 515-3333.

As soon as you are assigned laboratory and desk space, you should locate and read the laboratory safety plan information for that location. Sign the form indicating you have read and understand the information and place it in the safety plan notebook. Discuss general lab safety issues with the supervisor for the area or a designated technician. As you develop new procedures for your research, a description of the procedure and precautions to reduce hazards should be included in the safety plan. ALL students and employees must participate in the Hazard Communication Training provided by the Environmental Health and Safety Office as soon as possible. The course schedule is advertised in the University Bulletin and at <http://www2.ncsu.edu/ncsu/ehs/www99/right/training/index.html>.

If you anticipate the use of radioisotopes in your research, you should take the appropriate Radiation Training Courses offered by the Radiation Protection office. See

<http://www2.ncsu.edu/ncsu/ehs/www99/right/training/index.html>. Additional training is required for use of materials that are biohazards or potentially carry blood-borne pathogens.

For research involving live vertebrate animals, a self-paced training course is available from the university's attending veterinarian. See <http://www.ncsu.edu/iacuc/training.html> for instructions. You are also required to complete a health survey. For this policy and the required forms, see <http://www.ncsu.edu/iacuc/>

Research with human subjects requires prior approval from the Institutional Review Board. See <http://www.ncsu.edu/sparcs/irb/>

(2) Equipment and Supplies

Most equipment and instruments have been purchased for use by all members of the department. The faculty member with primary custody is responsible for establishing guidelines, procedures, or schedules that should be followed by all users of an instrument. Failure to follow established procedures may result in restrictions on the use of an instrument.

Before using any equipment or supplies from another laboratory, please request permission from the faculty or staff member responsible. When working in someone else's laboratory, every effort should be made to avoid interfering with residents of that lab and to do a complete job of cleaning up when you are through. We hope that such common courtesy will encourage more interaction between people in various research groups, since this is a very desirable part of the educational process.

(3) Use of Telephone

Personal calls should be avoided as much as possible and should be brief. Long distance calls for business purposes should be placed Station to station (Direct Dial 7-1-area code-seven digit number). Personal long-distance calls should be made with your own telephone credit card. Each phone should have a log for recording the purpose of long distance calls charged to the university. On-campus calls can be dialed with the last 5 digits of the phone number (2-xxxx, 3-xxxx, 5-xxxx, etc).

(4) Travel Policy

Students are encouraged to attend and present papers at local and national scientific meetings. Travel support may be considered for students to attend one professional meeting during the M.S. and two during the Ph.D. degree programs. Exceptions to this number may be approved with proper justification and strong research productivity. Every effort should be made to obtain travel support from extramural sources (Graduate Student Association, Graduate School, Food Science Club, Foundations, etc).

Getting around Raleigh: Routine riders of Capital Area Transit (CAT) and Triangle Transit (TT) need to pick up a GoPass (swipe card) at the Transportation office, 2721 Sullivan Drive (bring your Campus ID). www.ncsu.edu/gopass

* GoPass is free to all current NC State students, faculty and staff with valid ID's.

* Renew yearly at the beginning of each academic year.

* GoPass has nothing to do with Wolfline ridership; nothing is required to ride Wolfline except catch Wolfline at designated bus stops.

(5) Vacations and Holidays

Graduate research assistants, in their roles as employees of the department, are expected to adhere to the working schedule of academic employees. As one-half time employees, their service obligation is 20 hours per week. This time may be devoted to research applicable to their thesis or to other work depending on the conditions of the research funding. Holiday schedules are readily available from advisors or bulletin boards. Research assistants are entitled to two weeks of vacation each year. Vacation should be taken at a time approved by the student's advisor.

(6) Adverse Weather Conditions

Closing of the university due to adverse weather conditions will be announced on the radio with a notice from the Chancellor's office. Notices are also posted on the NCSU home page and telephone system. If offices remain open, students who anticipate transportation problems will be permitted, with advisor's approval, to take vacation leave in reporting for work or leaving early. Time will be made up at the discretion of the advisor. Work time lost by students due to closing of the university or by voluntary action must be charged to vacation leave or made up.

(7) Registration

Each graduate student admitted to the Food Science Curriculum must register each Fall and Spring semester until the degree is granted. Graduate students, who were enrolled spring semester and will be enrolled fall semester, will be allowed to use the library even though they are not registered for Summer Sessions. An additional fee is required for use of the gym and health center. Registration for FS 696/896 is recommended for U.S. students on assistantship to avoid FICA tax withholding and cover the above fees, but summer tuition is not provided by the Graduate Student Support Plan.

(8) Assistantships - In-state tuition, tuition remission and health insurance benefits.

Research and teaching assistantships are awarded annually and are normally renewed for a total of 4 semesters for a M.S. and 6 semesters for a Ph.D., as stated in letters of offer. In-state tuition and health insurance are paid by the source of the assistantship and non-resident tuition is paid by the college and graduate school as needed and available. Students paid a qualifying assistantship and registered for sufficient

hours will received health insurance beyond the stated number of semesters (see http://www.fis.ncsu.edu/grad_FinancialService/) for details. Students on assistantship and full time international students are required to register for 9 cr per semester for the first 3 semesters of an M. S., the first 6 semesters of a Ph.D. (8 semesters for Ph.D. students who do not have an M. S.). Thereafter, registration for 3 cr per semester is required. See the chart at the end of this manual or at http://www.fis.ncsu.edu/grad_financialService/pocket_chart.htm . All students must be registered during the semester they graduate (Fall, Spring, Summer I or Summer II), unless the completed thesis or dissertation is submitted to the graduate school prior to the beginning of class for that term. Exceptions to the 4 and 8 semester limits to the Graduate Student Support Plan are possible for 2 additional semesters if funds are available and certain conditions are met.

Stipends are paid biweekly by direct deposit to your designated bank account. Currently registered, full-time students who work on campus less than 30 hr/wk are exempt from FICA tax. Any work done in addition to a student's monthly assistantship requires approval by the student's DGP, PI, or advisor. Additional jobs can have important effects on tax status and visas for international students.

Students paid an assistantship from grant funds must complete Conflict-of-Interest statements as do other NCSU employees. Affected students will be notified by email from the Sponsored Programs office (SPARCS).

(9) Establishing North Carolina Residency

The Graduate Student Support Plan will only guarantee non-resident tuition for one year for U.S. citizens. However graduate students who are U.S. citizens or permanent residents are eligible for North Carolina residency for tuition purposes under certain conditions. Immediately upon moving to North Carolina, it would be advantageous to undertake the following actions determined to be tangible indications of residency intent: convert automobile registration to North Carolina, obtain a property for taxation, obtain a N. C. driver license and voting registration, file a North Carolina tax return as a resident at the next appropriate time, and convert banking, club/organization memberships, etc. to North Carolina.

In addition to the above mentioned steps, it will be incumbent on the individual to demonstrate that he/she is financially independent of parents or guardian, if they are non-residents of North Carolina, and to demonstrate a visible means of support substantiating the claim of financial independence. If the individual has not been totally self-supporting during the last 24 months, a completed affidavit will be required from the parent(s) to indicate the amount of support provided.

Further and equally important, once the individual has clearly established the residency intent and financial independence, he/she must maintain North Carolina residence for 12 months immediately prior to the semester the in-state status can be made effective. The only exceptions to the required 12 month residency period apply in some, but not all, cases to individuals marrying a North Carolina resident who has maintained residency for

12 months or longer, and to individuals whose parents have been North Carolina residents 12 months or longer and who are legal dependents of their parents. Special consideration may also be given to N.C. public school teachers, UNC-system employees, and active-duty military personnel.

A Residence and Tuition Status Application should be submitted to The Graduate School Residency Officer, Box 7102, N. C. State University not more than 60 days before the beginning of the second year of residence. For updated information see <http://www2.acs.ncsu.edu/grad/students/current/resident.htm>.

(10) Minimum Course requirements for Graduate Degrees in Food Science

	<u>Mr. F.S.</u>	<u>M.S.</u>	<u>Ph.D.</u>
<u>Minimum Credits Needed on Plan of Work</u>			
	36	30 cr	72cr
Research	FS 693 4-6 cr ^a (maximum)	FS 695 6 cr ^b (maximum)	FS 895 Unspecified
Seminar	FS 780 - 1 cr	FS 780 – 1 cr ^c	FS 780 – 1 cr
Research Ethics			1 cr ^d
Teaching ^e	-	FS 685 – 1sem	FS 885 – 2sem
Core FS Courses ^f			
With a minor	6 cr	6 cr	9 cr
Minor Optional	12 cr	12 cr	15 cr
	(Minimum for Plan of Work)		
Minor ^g	6 – 10 cr	6 – 10 cr	6 – 10 cr
Dual level FS ^h	6 – 8 cr	6 – 8 cr	6 – 8 cr
Other 400 level ⁱ	6 cr (maximum)	6 cr (maximum)	6 cr (maximum)
500 and 700 level ^j	20 cr (Minimum, including courses specified above)	20 cr	not specified
Transfer Credits	15 cr ^k	12 cr ^l	18-36 ^m

^aMaster of Food Science students must take 4-6 hours of an independent study project to include library or laboratory research, or a service project of similar depth. FS 699 or 899 should be used only after completion of all courses on a plan of work and only writing and defense of the thesis or dissertation remains. No other courses may be taken when enrolled in FS 699 or 899.

^bNo more than 6 cr of research (693, 695) can be applied toward the minimum 30 cr of a M. S. degree. Non-thesis students should not register for FS 695 - Master's Thesis Research.

^cAt least one but no more than 2 cr of seminar should be applied toward the minimum total hours for a master degree.

^dAll doctoral students' plan of work must include a course of at least 1 credit that has a major focus on research ethics. Suitable course are listed on the Research Ethics program website, <http://www.chass.ncsu.edu/ethics/page.php?name=courses>. Students who can demonstrate equivalent exposure to research ethics topics may petition their advisory committee to waive this requirement.

^eWhile serving as a teaching assistant, students must register for 1-3 cr of FS 685/885, supervised teaching during one semester for a M.S. student and 2 semesters for a Ph.D. student.

^fMost food science graduate courses are included in one of the following categories: Microbiology, Chemistry-biochemistry, Nutrition, Engineering, and Processing Technology. A Master's program must include courses from at least two (2) and a Ph.D. program must include courses from three (3) categories (or equivalent courses at another university). To qualify as meeting a category requirement a course must be at least 2 cr. **Dual level courses normally taken in an undergraduate Food Science major (FS 502, 503, 505, 506 and 521) do not fulfill the credit requirement in this category.** Enrollment in a greater number of Food Science courses is encouraged.

^gCredits for a minor are variable depending upon the requirements of the minor department or program. Normally, a student will select the minor work from a single discipline or field that, in the judgment of the advisory committee, provides relevant support to the major field. However, when the advisory committee finds that the needs of the student will best be served by work in an interdisciplinary minor, it has the alternative of developing a special program in lieu of the usual minor. Courses used to satisfy a minor for an M.S. at NCSU may also count toward a minor in the same program on the P.O.W. for a Ph.D. Food Science courses that are cross-listed with another department or program (e.g. FSA or NTR) may count toward the major or the minor, but not both.

^hGraduate students who do not have a degree in Food Science must enroll for credit in two (2) of the following courses in their graduate programs:

FS 231 – (Food Engineering); FS 502 (FS 591F,G) – (Food Chemistry); FS 505 and 506 (FS 591J,K)– (Food Microbiology and Food Microbiology Lab); FS 521 (FS 591C,D)- (Food Preservation).

FS 231 will **not** apply toward the credits on a plan of work but FS 502, 503, 505, 506, and 521 may be used as elective credits to meet the minimum 30 credits for a MS Degree or 36 credits for a Mr. F. S. Degree or 72 credits for a Ph.D.

ⁱNot more than 6 cr of 400-level courses from OTHER departments can apply to graduate plan of work. The P. O. W. cannot include 400-level courses in a major department.

^jAt least 20 semester hours on a plan of work must come from 500 and 700 level courses in any department. No more than 2 hours of departmental seminar may be included in the minimal 30 hour requirement for Master degrees.

^kUp to 15 cr on a Mr. F.S. and 12 cr on a M..S. degree may come from any combination of the following transfer options:

- (1) Transfer of graduate credits earned at other universities
- (2) Transfer of graduate credits earned while enrolled in an undergraduate program at NC State University
- (3) Transfer of graduate credits earned while enrolled in a previous graduate degree program at NC State University
- (4) Transfer of Post-Baccalaureate Studies (PBS) graduate credits earned at NC State University

^lThe 72-cr requirement for a Ph.D. may include up to 36 cr transferred from a relevant M. S. degree taken at NCSU or 18 cr transferred from a M. S. degree taken at another university.

Exclude FS 696, FS 896, FS 699 and FS 899 from Plan-of Work. FS 696 and FS 896 are to be used for students who need summer registration for various reasons. Examples are: New students beginning a research project in the Summer term; U.S. students who wish to avoid deduction of FICA taxes (7.5%) from their stipend during the summer months. FS 699 and FS 899 should be used only after all course work on the POW has been completed, and after admission to candidacy for FS 899. No other courses should be taken when registering for FS 699 and FS 899.

Minor in Food Science

For students majoring in other departments or programs, the Minor in Food Science consists of 9 credit hours from any food science listings. Only 6 hours of 400-level courses can be on a plan of work, but these can be Food Science courses used to satisfy the requirements for the minor. The minor representative to the advisory committee (who must be a graduate faculty member in the Food Science Department) can make recommendations on which courses should be selected.

Graduate Courses by Category

Chemistry- biochemistry

- [FS 510- Food Lipids: Issues and Controversies](#)
- [FS 567- Sensory Analysis of Foods](#)
- [FS 765- Polymer and Colloidal Properties of Foods](#)

Engineering

- [FS 741- Thermal Processing of Foods](#)
- [FS 785- Food Rheology](#)

Microbiology

- [FS 540](#)- Food Safety and Public Health
- [FS 725](#)- Fermentation Microbiology

Nutrition

- [FS 555](#)- Exercise Nutrition
- [FS 706](#)- Vitamin Metabolism
- [FS 730](#)- Human Nutrition (Converting to FS 501 – Advanced Nutrition and Metabolism)

Processing Technology

- [FS 530](#)- Post-Harvest Food Safety
- [FS 553](#)- Food Laws and Regulations
- [FS 751](#)- Food Ingredient Technology In Product Development

General Food Science

- [FS 520](#)- Pre-Harvest Food Safety
- [FS 554](#)- Lactation, Milk, and Nutrition
- [FS 562](#)- Postharvest Physiology
- [FS 580](#)- Professional Development and Ethics in Food Safety
- [FS 780](#)- Seminar In Food Science

“Remedial” Food Science for students without a prior degree in the field

- [FS 502](#)- Chemistry of Food and Bioprocessed Materials
- [FS 505](#)- Food Microbiology
- [FS 506](#)- Food Microbiology Lab
- [FS 521](#)- Food Preservation

(11) Graduate Students Progress Evaluation

The progress of each student in his/her graduate program will be evaluated on a regular basis.

- For full-time students, the Progress Evaluation will take place annually before initiation of the student's 3rd, 5th, 7th, etc regular semesters (summers excluded). Part-time students will be evaluated biennially before the start of the 3rd, 5th, 7th etc. year dating from the beginning of the graduate program.
- The chairperson of the students' advisory committee will convene the evaluation and the students' entire advisory committee will participate in the evaluation.
- The Ph.D. Preliminary Oral Examination will replace the annual or biennial Progress Evaluation provided it is scheduled within 3 months of the normal evaluation date established in a. above. If a Progress Evaluation is postponed in anticipation of the Preliminary Oral Examination, the Chairman of the Advisory Committee will call for an immediate Progress Evaluation if it is determined that the Oral Exam cannot be held within the 3-month period. If the Preliminary Oral Exam replaces the Progress Evaluation, the next Progress Evaluation will take place as specified in a.

- d. The M. S. and Ph.D. Final Oral Evaluation (thesis defense) will replace the annual or biennial Progress Evaluation provided it is scheduled within 3 months of the normal evaluation date established in a. If a Progress Evaluation is postponed in anticipation of the Final Oral Examination, the Chairman of the Advisory Committee will call for an immediate Progress Evaluation if it is determined that the Final Oral Examination cannot be held within the 3 month period. Extension will require approval of the department head.
- e. Students who do not complete all requirements for the degree within 1 year of the Final Oral Examination, must return annually for a Progress Evaluation.
- f. Upon completion of each evaluation, the student's advisory committee will complete and sign (signature) an evaluation form.
- g. The student will read the evaluation, discuss it with the committee, affix his/her signature and add written comments if he/she deems it necessary.
- h. One copy of the completed and signed evaluation form will be distributed by the chairperson of the advisory committee to each of the following:
 1. Director of Graduate Programs
 2. Advisor
 3. Student
 4. Any advisory committee member who wishes a copy.
- i. This recommendation should not be used to delay or otherwise affect the submission of the student's plan of graduate work which is due in the graduate school prior to the student's completion of one-half of the proposed program.

(12) Continuation on Doctoral Program

Any master's degree candidate who wishes to continue in a doctoral program at NCSU must give notice of this intent at least one full semester before completion of the master's program. At least two faculty members should be asked to write letters of recommendation. Applications will be evaluated and standards required for outside applicants to our doctoral program. It is our policy to discourage students holding B. S. degrees from NCSU from remaining here for their doctorate except under extenuating circumstances.

Students enrolled in the M.S. program who desire to transfer to the Ph.D. program without completing the M.S. must follow the Food Science Department Policy for Admission to the Ph.D. Program (Appendix 1).

(13) Preliminary Comprehensive Exam for Ph.D. Candidates

The Graduate School requires each doctoral student to pass a Preliminary Comprehensive Examination composed of two parts: written and oral. All doctoral students will take a departmentally administered exam in partial fulfillment of the written requirement. The examination is given annually, usually in May or June. It is the students' responsibility to notify the chair of the Preliminary Exam Committee of their intent to take the exam. (see Appendix 2. Policy Guide - Food Science Ph.D. Written Preliminary Examination.)

(14) Teaching Assistants

All graduate students are required to serve as teaching assistants in Food Science courses. (see program requirements' section). The experiences benefit the department, the Faculty and both graduate and undergraduate students. Assignment of teaching assistants is made by the director of graduate programs. Attempts will be made to accommodate requests from students and Faculty for TA/course assignments. International students are required to take the English proficiency "Speak" test administered by the graduate school prior to TA assignment. Students will be required to act as a teaching assistant once during an M. S. program or twice during a Ph.D. program.

(15) Fellowships

To encourage students to apply for graduate fellowships and awards, the Food Science Department recommends that any fellowship or award stipend based upon excellence in scholarship, research, teaching, or leadership be combined with graduate assistantship funds.

(16) Statistical Consulting Service

The Statistics Department offers free consulting to graduate students and faculty in the College of Agriculture and Life Sciences. Assistance in the design of experiments, methods of data analysis and interpretation of results is available. This service is provided as part of a training program for graduate students in Statistics who do the consulting under the supervision of the faculty. For more information or an appointment, call 515-2584.

(17) Thesis

Electronic Thesis and Dissertation Submission (ETD) is required. The Graduate School has prepared an ETD website with information needed to complete this process: <http://www2.acs.ncsu.edu/grad/students/current/thesis.htm>. This website includes a step-by-step tutorial, frequently asked questions, and all information needed to successfully submit the ETD. It also contains detailed information about registering for Thesis & Dissertation/ETD Workshops. These are hands-on classes designed to teach the entire process of ETD submission, as well as all information needed to correctly format the thesis or dissertation and go through the steps necessary to meet all deadlines

required. Participation in this workshop early in the graduate program is recommended. The website is: <http://etd.ncsu.edu>. The Thesis and Dissertation Guide can be accessed through the ETD website, or at the following web address:

<http://www.ncsu.edu/grad/etd/index.php>

Students are responsible for the typing and formatting of their thesis or dissertation. Please be aware of all deadlines and instructions about applying for graduation at the EDT website.

(18) Final Defense

The M.S. and Ph.D. degrees require an oral defense of the thesis or dissertation and the students entire graduate program attended by all members of the advisory committee. If the student or any committee member will not be physically present at the exam (i.e. will attend by video conferencing), prior approval from the graduate school is required. In such cases, all committees are required to have a member who is not from the student's major department. (This is a requirement for all Ph.D. committees.) Doctoral prelim and final exams should be scheduled with the graduate school, and permission to schedule the final defense for M.S. students should be requested, at least 2 weeks prior to the exam.

At the final defense for the Master or Doctoral degree, the student shall submit a curriculum vitae to the members of the committee and the Director of Graduate Programs, or submit equivalent information in the Graduate Student On-line Academic Reporting System, <https://gsoars.acsad.ncsu.edu>.

Format for graduate students' curriculum vitae

Name
Academic Department
Local Address
Telephone Numbers
Email address

Education

(list of degrees and dates and colleges where degrees were granted)

Professional Qualifications

(list of professional activities, with appropriate dates, including teaching experience, internships, fellowships, special training, awards, and other employment related to your academic interests)

Publications

(list of articles or other professional works that have been published, accepted for publication, or submitted for publication; include authors, date of publication, title of article, title of journal or other publication, volume and issue, page numbers)

Presentations

(list of presentations of research to any of a wide variety of audiences and venues, such as graduate seminars and professional conferences for local, regional, national, and international audiences)

Grants

(list of grants you have submitted, indicating status of grant—accepted, in process, rejected, etc.)

Professional Organizations

(list of professional organizations you are a member of and/or have participated in, any offices you hold in those organizations, and any meetings you have attended)

(19) Job Search Tips

The Food Science Department collects information about positions for food scientists in a Graduate Job Opportunities Book and an Undergraduate Job Opportunities Book in Room 119. These and other position announcements are listed with the CALS Career Services office, 111 Patterson Hall, or on their website:

<http://www.cals.ncsu.edu/career/>. The Food Science Club establishes a book of resumes of students seeking employment and provides it to companies for recruiting purposes. Numerous food companies visit our campus to interview prospective employees at all levels. Arrangements are made through the Food Science Club or through CALS career services office.

(20) Summary of Forms to be Submitted to the Graduate School

<u>M.S.</u>	<u>Suggested time frame</u>	<u>Ph.D.</u>	<u>Suggested time frame</u>
Patent agreement	First week of classes	Patent agreement	First week of classes
Committee appointment	By end of first semester	Committee appointment	By end of first semester
Plan of work	By end of second semester	Plan of work	By end of second semester
Request for permit to schedule oral M.S. exam	At beginning of last semester of courses listed on plan of work	Request for permit to schedule oral prelim exam	At least two weeks prior to exam date
Submit thesis for approval	After passing final oral exam and making suggested corrections	Request for permit to schedule final oral exam	At least two weeks prior to exam date
Diploma request card		Submit dissertation for approval	After passing final oral exam and making suggested corrections
CV to DGP		Diploma request card CV to DGP	

Forms are available from the Academic Programs Office (119 Schaub) or on the web at <http://www2.acs.ncsu.edu/grad/gars/garsform.htm> They should be turned in to the Academic Programs Office (Room 119) and not sent by the student to the Graduate School.

(21) Forms Specific to the Food Science Department:

Graduate Students Progress Evaluation Forms - See Item (11), page 7

Graduate Student Exit Survey - Forms should be picked up from the Academic Programs Office at the time of the final defense and returned prior to graduation.

Curriculum Vitae – see Item 13, page 9

Guidelines For M.S. Program

Revised 01/19/00

The procedures for the Master's Degree are found on pages 46 – 48 of the 1998 Graduate Catalog and on the web at: http://www.fis.ncsu.edu/grad_catalog/cat-gp.htm

This list of *guidelines*, rather than hard and fast rules, should be viewed as general milestones in a 2 year M.S. program. **To best use these guidelines, students should meet with their advisor and committee to tailor the guidelines into specific goals for their degree program.**

1st Semester

- 9 hrs of courses (9 hrs completed)
- Initial experiments in the laboratory
- Outline of literature review completed
- Select committee members (consult minor representative if appropriate)

2nd Semester

- 9 hrs of courses (18 hrs completed)
- Experimental methods developed
- 10 – 25% of research is completed
- First draft of literature review completed
- Committee meeting and *Student Progress Evaluation* form completed
- File plan of work

1st Summer

- 25 – 50% of research is completed

3rd Semester

- 9 hrs of courses (27 hrs completed)
- 50 – 75% of research is completed
- Write publication/thesis chapter
- Submit abstract for presentation at a national/international meeting
- Design final series of experiments

4th Semester

- 3+ hrs of courses (≥ 30 hrs completed)
- 75 – 100% of research is completed
- Final draft of literature review completed
- Write publication/thesis chapter
- Present research at a national/international meeting
- Committee meeting to determine completion of research project and *Student Progress Evaluation* form completed

2nd Summer

- Finish writing
- Defend thesis
- Present research at a national/international meeting
- Note: International students on J1 visas have to leave the country within 30 days after the thesis is submitted to the graduate school

Other Information and Requirements

- A committee meeting is required each year where student progress is evaluated (these meetings are noted for the 2nd and 4th semester). Two copies of the *Student Progress Evaluation Form* are attached. The completed form is submitted to the director of graduate studies and copies are provided to the student and committee members.
- During the course of your program you are required to be a teaching assistant in one class.
- The university Graduate Student Support Plan is attached or can be found on the web at: http://www.fis.ncsu.edu/grad_financialService/

Guidelines For Ph.D. Program

Revised 01/19/00

The procedures for the Doctorate of Philosophy Degree are found on pages 49 – 55 of the 1998 Graduate Catalog and on the web at: http://www.fis.ncsu.edu/grad_catalog/cat-gp.htm

This list of *guidelines*, rather than hard and fast rules, should be viewed as general milestones in a 3 year Ph.D. program. **To best use these guidelines, students should meet with their advisor and committee to tailor the guidelines into specific goals for their degree program.**

1st Semester

- 9 hrs of courses (36 hrs [NCSU] or 18 hrs [non-NCSU] transferred from M.S. program)
- Initial laboratory experiments and draft of review of literature
- Review information for written preliminary exam
- Select committee members (consult minor representative if appropriate)

2nd Semester

- 9 hrs of courses
- Experiments in the laboratory and/or outline of review of literature
- Committee meeting and *Student Progress Evaluation* form completed
- File plan of work

1st Summer

- Written Preliminary Exam
- 5 – 20% of research complete

3rd Semester

- 9 hrs of courses
- 15 - 30% of research complete (encouraged to submit abstract for presentation at national/international meeting)
- Write grant proposal or other document for oral preliminary exam

4th Semester

- 9 hrs of courses
- 25 – 50% of research complete
- Final draft of literature review completed
- Write publication/thesis chapter
- Present research at a national/international meeting
- Committee meeting and *Student Progress Evaluation* form completed
- Oral Preliminary Exam

2nd Summer

- Research/Publication

5th Semester

- 9 hrs of courses
- 50 - 100% of research complete
- Write publication/thesis chapter
- Submit abstract for 2nd presentation at national/international meeting

6th Semester

- 9 hrs of courses
- 100% of research is complete
- Write publication/thesis chapter
- Present second paper at a national/international meeting

- Committee meeting to determine completion of program and *Student Progress Evaluation* form completed

3rd Summer

(22) Total program of 72 hrs complete (36 or 54 taken on the Ph.D. program; including hours for research, teaching and thesis preparation)

- Finish writing
- Present exit seminar and defend thesis

- Note: International students on J1 visas have to leave the country within 30 days after the thesis is submitted to the graduate school

Other Information and Requirements

- A committee meeting is required each year where student progress is evaluated (these meetings are noted for the 2nd, 4th and 6th semester). Three copies of the *Student Progress Evaluation Form* are attached. The completed form is submitted to the director of graduate studies and copies are provided to the student and committee members.
- During the course of your program you are required to be a teaching assistant in two classes.
- The university Graduate Student Support Plan is attached or can be found on the web at:
http://www.fis.ncsu.edu/grad_financialService/

Available from Academic Programs Office:

Appendix 1. Policy Guide – Food Science Ph.D. Written Preliminary Examination

Appendix 2. Policy for admission to the Ph.D. program.

Appendix A. Policy for admission to the Ph.D. program.

APPROVED 2/12/90

**NORTH CAROLINA STATE UNIVERSITY
DEPARTMENT OF FOOD SCIENCE POLICY
FOR ADMISSION TO THE Ph.D. PROGRAM**

The outline presented below is intended to standardize and publicize the procedures and criteria used by the Graduate Committee in considering those requests for admission to the Ph.D. program by students who have or anticipate receiving a B.S. or students in our M.S. program who wish to bypass the M.S. and work directly toward the Ph.D. degree. In each case, the procedures formalize the central role of the M.S. Thesis Advisory Committee and/or Food Science Graduate Committee in determining the suitability of an applicant for admission to our Ph.D. program.

I. **Persons who have or anticipate receiving a B.S. degree**

Persons applying for admission to the Ph.D. program who hold B.S. degrees will be considered for admission to the Ph.D. provided they satisfy the following criteria. Only exceptionally qualified students with evidence of their research experience and communicative skills in addition to the documentation required by the Food Science Graduate Committee and Graduate School (completed graduate school application, GRE scores, official undergraduate transcripts, three letters of reference, statement describing research interests and career goals, and TOEFL scores [foreign students only]) will be considered for admission into the Ph.D. program. Research experience documentation should include reprints or preprints of publications, published abstracts and a listing of other formal presentations of their research. Final approval of the application will be made by the Food Science Graduate Committee using the same criteria for all Ph.D. applications. Following approval, the applicants' folder will be handled using established procedures. All applicants admitted to the Ph.D. program via this route are to fulfill all current Ph.D. requirements including any undergraduate Food Science course deficiencies plus a minor field of study. Those applicants denied admission into the Ph.D. program, but eligible for admission into the M.S. program will be duly informed of the committee's recommendation by the Food Science graduate coordinator.

II. **Graduate students who wish to bypass the M.S. and transfer directly into
The Ph.D. program**

Those exceptional students satisfying the necessary criteria outlined below will be allowed to bypass the M.S. degree and transfer directly into the Ph.D. program. The procedure for transferring into the Ph.D. program is as follows. A letter from the student should request direct admission to the Ph.D. program, bypassing the M.S. The Food Science Graduate Committee must be supplied with evidence of the student's research and communicative skills, such as reprints or preprints of publications, published

abstracts, and a listing of other formal presentations. The letter should outline the rationale for the transfer and state (or request) the arrangements for the student's support if applicable. A letter of recommendation from the M.S. Thesis Advisory Committee should be sent to the Graduate Committee. The recommendations of the M.S. Committee for transfer to the Ph.D. program should be made after at least one meeting at which the student presents his/her current research results and future plans for the Ph.D. thesis research. In the event that a M.S. committee has not been appointed at the time the transfer is requested, the Food Science Graduate Committee will serve in this capacity. All applicants admitted to the Ph.D. program via this route are expected to fulfill all current Ph.D. requirements including any undergraduate Food Science course deficiencies plus a minor field of study.

Please refer to the current Graduate Program Policies and Procedures manual for specific details on the minimum course requirements for graduate degrees in Food Science (August 1, 1988).

APPENDIX B:

Graduate Program in Food Science
Outcomes Assessment (Abridged)**Objectives and Outcomes**

Objectives for the program are:

1. To guide the graduate education of students preparing for professional careers
2. To prepare students to be effective researchers in contributing to the advancement of the safety, variety, and quality of food products for the state, the nation, and the world
3. To maintain and improve the program's leadership position nationally and internationally

Outcomes for each of the program's objectives are:

1. To guide the graduate education of students preparing for professional careers, the program aims to provide a variety of experiences that help students to:
 - a. develop expertise in appropriate concepts, theories, and emerging methodologies from the fundamental disciplines of biochemistry, chemistry, engineering, microbiology, and nutrition
 - b. attain fundamental experience in applying their knowledge to ongoing, real-world issues in food systems, components, products, and processes
 - c. present their research in peer reviewed journals and in conference papers given at professional meetings on the local, regional, and national levels
 - d. participate actively in professional organizations, becoming members, attending meetings, and, where appropriate, taking leadership roles

2. To prepare students to be effective researchers in contributing to the advancement of the safety, variety, and quality of food products, for the state, the nation, and the world, the program aims to provide a variety of experiences that help students to:
 - a. develop a comprehensive knowledge of previous and current research in their field of expertise and be able to demonstrate that knowledge capably in a review of the literature
 - b. generate viable questions within their field of expertise and pose problems or hypotheses related to those questions
 - c. apply sound research methods to problems in food science and describe the methods effectively
 - d. perform statistical analyses of research data and present the results in a way that makes clear sense of the data
 - e. discuss the solution to the research problem or the support or lack of support for the hypothesis in a way that effectively documents the contribution of the research to the area of study
 - f. become independent, self-motivated researchers with the ability to recognize problems in their field of expertise and formulate solutions to the problems
 - g. gain experience in laboratory, classroom, extension, or internet teaching

3. To maintain and improve the program's leadership position nationally and internationally, the program aims to:
 - a. continue to attract high-quality students
 - b. provide effective mentoring that encourages students to graduate in a timely manner
 - c. place graduates in positions in industry and academics
 - d. maintain a nationally recognized faculty that is large enough and appropriately distributed across food science disciplines to offer students a wide range of fields of expertise

- Summary: Data to be collected
- Scores on written preliminary exams for doctoral students
 - Course grades on food science courses for all graduate students
- Responses to question on student exit interview with department head concerning students' satisfaction with experience in applying their knowledge to real-world issues
 - Curriculum vitae forms brought by students to annual committee meetings and oral defense listing publications, presentations, memberships in professional organizations, meetings attended, and leadership roles and giving job plans
 - Rubric to be filled out by committee at a student's annual committee meeting (see attached)
 - Application statistics (number of applicants, percentage of applicants accepted, percentage of accepted candidates matriculating)
 - Time-to-degree statistics
 - Job placement statistics
 - Faculty Activity Reports
 - FTEs per discipline
 - Achievement of faculty hiring goals

Student Progress Evaluation Form –Page 2
FOOD SCIENCE GRADUATE PROGRAM EVALUATION RUBRIC

Needs Improvement Competent Not Applicable

1. reviews the literature in a way that demonstrates comprehensive knowledge of previous and current research in the field of study			
2. generates a viable question within the field of study and poses a worthwhile problem or hypothesis related to the question			
3. applies sound research methods to the problem or hypothesis and describes the methods effectively			
4. performs statistical analyses of research data and presents the results in a way that makes clear sense of the data			
5. discusses solution to problem or support for hypothesis in a way that effectively documents the contribution of research to area of study			
6. demonstrates sufficient knowledge of appropriate concepts, theories, and emerging methodologies in food science			
7. demonstrates qualities of independent, self-motivated researcher with the ability to recognize problems in the field of study and formulate solutions to the problems			
8. demonstrates qualities of an effective teacher			

Comments:

POLICY GUIDE
FOOD SCIENCE PH.D. WRITTEN PRELIMINARY EXAMINATION

Revised and Approved (May 17, 2001)
Effective Date (February 1, 2002)

1. A written preliminary examination in Food Science is used to uniformly evaluate our Ph.D. students' knowledge and comprehension of food science and ability to apply that knowledge at the graduate course level. The examination will be prepared by the Ph.D. preliminary examination committee with questions submitted by the faculty discipline committees. The examination may address knowledge, concepts, current issues and historical events important to food science. Every food science graduate student enrolled in the Ph.D. program is required to pass the examination.
2. Members of the Ph.D. Preliminary Examination Committee should be appointed by the Department Head. The committee shall be comprised of six faculty members; one each from the five discipline areas and one additional member to serve as chairperson. The discipline designee will organize the discipline committee. Each discipline committee shall be comprised of at least three faculty members. The chairperson will forward a memorandum to the graduate students indicating the date of the examination, sign up deadline, and rules for conduct of the examination. The chairperson shall also schedule and administer the examination, oversee the grading process, communicate scores and the pass/fail decisions to the students and Department Head.
3. The Ph.D. candidate designated by the Department Head to serve on the Graduate Committee will serve as the student liaison to the Preliminary Examination Committee. The student liaison will not sit on the committee but will, upon request, meet with the committee to present and discuss student concerns or needs.
4. The five discipline committees (Chemistry, Nutrition, Engineering, Microbiology, and Food Technology) will meet individually prior to each exam date (2 times per year) and develop 6 questions. The Preliminary Examination Committee will select three of the six questions for the exam.
5. The exam will be offered twice per year, May – July and December – February, and will cover the following five areas: Food Chemistry, Food Engineering, Food Microbiology, Nutrition, and Food Technology. Within Food Technology, emphasis will be placed on integration of various disciplines to solve food-related problems. The initial attempt at the preliminary examination must be completed before the start of the 5th regular semester in the Ph.D. program. If a retake is required, it must be completed at the next examination offering. Failure to do so will result in a recommendation to the Graduate School that the student's program in Food Science be terminated.
6. Examination Format: CLOSED BOOK – in a designated room in Schaub Hall. Students will use "blue books" to record their answers. Conditional upon the development of the

appropriate security and back-up procedures, students will be offered the option of using the computers located in the Library to word process answers. In the event computers are used, the Library will be reserved for the two examination dates and efforts will be made to ensure that those taking the examination are not disturbed during the offering.

The examination will be made up of a total of three (3) questions in each discipline area for a total of fifteen (15) questions. Students will be instructed to answer two (2) of the three (3) questions in four (4) of the five (5) areas. A total of eight (8) questions (four disciplines) can be attempted at each offering. A maximum of twelve (12) hours will be allowed for completion of the examination.

7. Grading

When the Discipline Committee prepares a question, the committee will outline the minimum requirements necessary to “pass” the question. Each question will be graded by three members of the graduate faculty appointed in advance by the discipline committee. Every effort will be made to complete grading within three weeks of the examination. The scale to be utilized will be:

0-	very poor answer
1-	
2-	much less than proficient
3-	FAIL- less than proficient
4-	PASS – minimum proficiency
5-	
6-	highly knowledgeable
7-	
8-	expert

Graders are to use whole numbers only.

Any grade below the minimum passing score of 4 must include written comments from the grader outlining the expectations for a correct answer and deficiencies of the answer given.

PASSING: To pass the Ph.D. preliminary examination, a student must demonstrate proficiency in a minimum of three (3) discipline areas of Food Science. To demonstrate proficiency in a discipline area, both questions attempted must receive a score of 4 or higher from at least two of the three graders. During the first offering a student is required to receive a score of 4 or higher from at least two of the three graders on both questions attempted in three (3) discipline areas. If a retake is necessary, students will receive credit for having completed those disciplines where proficiency was demonstrated (correctly answered both questions attempted in the first examination). In discipline areas where both questions attempted in the initial offering were not “passed”, the student is allowed to carry over one (1) correct answer to the second examination. The one to be carried over will be selected based on the greatest benefit to the student. Consider the following examples. Student A passed six of eight questions attempted on the Preliminary Examination: passed two Chemistry; passed two Engineering; passed two Food Technology. Student A thus passed the examination. Student B passed five of eight questions attempted on the Preliminary Examination: passed two Chemistry; passed two Engineering; passed one Food

Technology. Student B thus did not pass the examination and must take the retake examination at the next offering. Any one of the following options must be successfully completed on the retake examination: 1) pass one Food Technology (i.e. carried this one over from examination one); 2) pass two Microbiology; 3) pass two Nutrition. If a retake is required, the committee chairperson shall counsel each student as to the best approach to the options available.

8. Students failing the examination are allowed one retake. If a retake is required, it must be completed at the next examination offering. Failure to do so will result in a recommendation to the Graduate School that the student's program in Food Science be terminated.
9. If a student fails to demonstrate proficiency in three of the five designated areas of Food Science over the course of the two examinations, a recommendation will be made to the Graduate School that the student's program in Food Science be terminated.
10. Students are encouraged to ask for clarification of any comments made by the graders on specific examination questions. However, students will not be allowed to request regrading of any examination questions.
11. This policy guide replaces all previous versions. The guide will apply to all future and current (those who have not taken the preliminary examination) Ph.D. students in Food Science.