

May 22, 2020

**MARIA MARCO, CHAIR**

Food Science Graduate Group

**RE: Food Science Degree Requirements**

Enclosed is a copy of the Food Science degree requirements as approved by Graduate Council on May 15, 2020. These degree requirements are now the official requirements for the Food Science Graduate Group and will be posted on the Office of Graduate Studies program webpage:

<https://grad.ucdavis.edu/programs/gfsc>

Thank you for your efforts on behalf of graduate education.

Sincerely,

A handwritten signature in dark ink, appearing to read "C. Arnett", followed by a stylized flourish or star-like mark.

Carlee Arnett, Chair  
Graduate Council

CC: Jasmine Bonite, Project/Policy Analyst, Graduate Studies  
Holly Ly, Graduate Group Coordinator  
Felicia Murdoch, Policy Analyst

**FOOD SCIENCE GRADUATE GROUP**  
**M.S. AND Ph.D. DEGREE REQUIREMENTS**  
**Last approved: May 14, 2003, Revised: June 19, 2019**  
**Graduate Council Approval: May 15, 2020**

**Master's Degree Requirements**

**1) Admissions requirements:** There is an annual deadline for submitting an application for admission into the Food Science Graduate Group (FSGG). It is the applicant's responsibility to ensure that all application materials are submitted to the Office of Graduate Studies by the deadline. Consideration for program admission requires a bachelor's degree, three letters of recommendation, official transcripts, GRE General Test scores, TOEFL or IELTS score (if applicable), and an Office of Graduate Studies online application with fee. A minimum GPA of 3.0 or higher (on a 4.0 scale) for undergraduate courses is required. GRE scores from the general test (verbal, quantitative, and analytical) must be submitted. UC Davis Office of Graduate Studies mandates that international students who have not studied at an institution where English is the official language of instruction must obtain the minimum university required score of 80 on the TOEFL or 7.0 (on a 9-point scale) on the IELTS before applying for admission.

Admissions decisions are made on a case-by case basis following a holistic review of each of the applications. The primary requirement for admission is evidence of intellectual achievement, research experience, and demonstrated potential for successful graduate study. Meeting the above criteria does not guarantee admission, but merely eligibility. The decision to recommend admission to the Dean of Graduate Studies will be made by the FSGG Admissions Committee on the basis of available space and the competitiveness of applicants compared to the eligible pool. All inquiries concerning the status of applications for admission should be referred to the Graduate Program Coordinator of the FSGG.

*a)*     **Prerequisites:** In addition to the admission requirements stated above, applicants are expected to have passed background coursework. Students with background deficiencies are encouraged to take as many of these courses as possible prior to their admission to the program. The equivalent UC Davis courses are noted in parenthesis.

The following courses are prerequisites:

*Chemistry:* General Chemistry lectures and laboratory (CHE 2A, 2B, 2C; 15 quarter units); Organic Chemistry lectures with laboratory (CHE 8A, 8B or CHE 118A, 118B, 118C or CHE128A, 128B, 128C and CHE129A, 129B, 129C; at least 6 quarter units)

*Biochemistry:* General Biochemistry (BIS 102, 103 or BIS105; 6 quarter units); Biochemistry laboratory (MCB 120L or FST 123 and FST123L; 2 to 6 quarter units)

*Mathematics:* Analytical Geometry and Calculus (MAT 16A, 16B, 16C; 9 quarter units); Statistics including analysis of variance (STA 100 or FST117; 3 to 4 quarter units).

*Physics:* Physics including laboratory (PHY 7A, 7B, 7C; 12 quarter units).

*Biology:* Introductory Biology (BIS2A; 4 to 5 quarter units)

The following courses are prerequisites for the required core courses. They are not required for admission. If equivalent courses were not taken prior to admission, they must be completed prior to or concurrent with the required M.S. core courses FST 203 and FST 204. A total of 4 units from these courses can be applied towards elective units in the graduate degree:

*Physical chemistry:* Physical Chemistry (CHE107A or FST100C; 3 to 7 units). Prerequisite for FST 203

*Food processing:* Food Processing (FST110; 3 units). Prerequisite for FST 203

*Food microbiology:* Food Microbiology (FST104; 3 units). Prerequisite for FST 204

b) **Deficiencies:** Missing admission and core course prerequisites should be completed by the end of the first academic year following initial enrollment by earning a letter grade of “B” or better. These courses cannot be taken on a satisfactory/unsatisfactory basis.

2) **M.S. Plan I and Plan II:** M.S. students are admitted into either the Plan I or Plan II program.

**Plan I.** This plan requires completion of a minimum of 37 units of upper division (100 series) and graduate (200 series) courses, of which 33 units must be at the graduate level, and a thesis based on original research. The research thesis and exit seminar serve as the capstone requirement.

This Plan requires more units than the UC Davis minimum, which is 30 units of graduate and upper division courses (the 100 and 200 series only), at least 12 of which must be graduate work in the major field.

**Plan II.** This plan requires the completion of a minimum of 37 units of upper division and graduate courses, of which 33 units must be at the graduate level, and a Comprehensive Examination consisting of a research report and oral exam. The capstone requirement is fulfilled by the Comprehensive Examination consisting of a research report and report and oral exam.

This Plan requires more units than the UC Davis minimum (37 units of graduate and upper division courses, of which at least 18 units must be graduate courses in the major field). No more than 9 units of research (299 or equivalent) may be used toward meeting the 18-unit requirement.

3) **Course Requirements (total 37 units):** Students must complete the following courses under either Plan I or Plan II.

a) **Core Courses (total 12 units):** All students in the program must take the following core courses in food chemistry, food processing, and food microbiology:

Course	Quarter	Units	Title
FST 201	Fall	4	Advanced Food Chemistry and Biochemistry
FST 203	Winter	4	Advanced Food Processing
FST 204	Spring	4	Advanced Food Microbiology

Core courses may not be taken on a satisfactory/unsatisfactory basis.

b) **Seminar Requirement (at least 6 units):** All students must take 6 units of graduate seminar courses. These courses are 1 to 2 units each in the FST290 and FST291 series.

c) **Elective Courses (at least 10 units):** Students must take at least 10 units of specialized courses reviewed by their Major Professor and approved by their Graduate Advisor. These

electives are expected to encompass topics relevant to performing master's research and include the major disciplinary areas of including (bio)chemistry, processing, food sustainability, fermentation, microbiology, and sensory and social science. Prerequisites for the required core courses can be included among the electives, however, at least 6 units of the elective courses must be graduate division courses (200 series). These units cannot include FSGG core courses. Students may request that an upper division undergraduate course (100 series) be included among those 6 units of electives, if a similar course on that topic is not offered at the graduate level (200 series) and the course is deemed necessary for the student by the Major Professor. Students must submit such requests to the Graduate Advisor and the final decision is made by Chair of the Academic Advising Committee.

Courses chosen to satisfy elective requirements must not be taken on a pass/no pass or satisfactory/unsatisfactory basis, with the exception of variable unit classes. The inclusion of any variable unit courses toward these 10 units requires the approval of the FSGG Academic Advising Committee.

*d)* **Research requirement (at least 9 units):** All students are expected to have at least 9 units of independent study (299) to perform their research project. Students may enroll in up to 12 units of 299 per quarter in order to complete their research project.

*e)* **Lab rotations:** There is no formal requirement for performing research rotations. However, many students perform 2 to 3 rotations at the start of their degree prior to joining a lab. A rotation must not last longer than 5 weeks. Research units (FST299) are provided by the Graduate Advisor or rotation research advisors to support the rotation process.

*f)* **Teaching assistantships:** There is no requirement for a Teaching Assistantship (TA) in the FSGG program. However, students are encouraged to apply for TAs if their professional goals include teaching.

*g)* **English language requirement:** Students who have not obtained a previous degree at an approved English-medium institution or demonstrated English-language proficiency through an appropriate exam (e.g. TOEFL) are required to complete appropriate English-language courses, as described in the policy Graduate Student Course Requirements – English as Second Language (GC2018-02). Courses taken in satisfaction of this requirement do not count towards the units required for graduation.

*h)* **Summary:** A total of 37 units comprised of 12 units of core coursework, 6 units of seminar, 9 research units (FST299), and 10 units of electives are required. Full-time students must enroll for 12 units per quarter including research, academic, and seminar units. Courses that fulfill any of the program course requirements may not be taken S/U unless the course is normally graded S/U. Once course requirements are completed, students can take additional classes to further develop skills needed to complete their research project, although the 12 units per quarter are generally fulfilled with a research class (299). Per UC regulations, students cannot enroll in more than 12 units of graduate level courses (200) or more than 16 units of combined undergraduate and graduate level (100, 200, 300) courses per quarter.

#### 4) Special requirements:

*a)* **Grade Point Average:** Each student must maintain a grade point average (GPA) of at least 3.0 (A = 4) in all upper division (100 series) and graduate courses (200 series). An S or at least a C- must be received in courses intended to fulfill degree requirements. Grades of D+ or lower cannot be used to satisfy the unit requirement but will be counted in determining the GPA. A student may, with the consent of the Graduate Advisor and the dean of Graduate Studies, repeat a course in which the grade of C+ or lower was earned. In such repeated courses, only the most recent grade shall be used in calculating the GPA (although all grades

received will be part of the permanent record). No more than 9 units may be repeated. A course taken for a letter grade cannot be repeated on a Satisfactory / Unsatisfactory (S/U) basis.

Courses in the 300-400 series (professional schools) may be accepted if they have been approved by the Academic Advising Committee. Courses graded S/U are not included in calculation of the GPA. If the student's overall GPA is less than 3.0, the student will receive a warning letter from Graduate Studies. If there is little or no improvement in the following quarter, the student is subject to disqualification.

b) **Satisfactory/Unsatisfactory (S/U) Grading:** For Variable unit courses and other specified courses that are graded as Satisfactory/ Unsatisfactory (S/U), the grade of "S" is awarded in graduate courses only for work which otherwise would receive a grade of B- or better and, in undergraduate courses, only for work which would otherwise receive a grade of C- or better.

**5) Advising Structure and Mentoring:** The **Major Professor** is the FSGG faculty member who supervises the student's research, research thesis (Plan I) or Comprehensive Examination (Plan II) and in whose laboratory the Ph.D. research is conducted. This person serves as the Chair of the Thesis Committee (Plan I) or Chair of the Comprehensive Examination (Plan II). The (faculty) **Graduate Advisor**, who is appointed by the Dean of Graduate Studies to have signatory authority, is a resource for information on academic requirements, policies and procedures, and registration information. The Graduate Advisor is distinct from the student's Major Professor. The **Student Advancement Committee** is responsible for the assignment of the Plan II Comprehensive Examination committee. The **Graduate Program Coordinator (staff)** is a resource for information on academic requirements, policies and procedures, and registration information.

**Mentoring Plan:** The mentoring team for FSGG students is comprised of the Graduate Advisor and the Major Professor.

**Graduate Advisors** will be assigned to incoming FSGG graduate students before their arrival. The Graduate Advisor will evaluate the adequacy of preparative coursework for incoming students, will assist the student in developing a course plan before their arrival, will provide guidance on research rotations, and will provide guidance on locating a Major Professor. To support guidance on rotations and locating a Major Professor, the Graduate Advisor will direct students towards faculty with research programs related to the student's stated areas of interest and provide strategies for connecting with faculty (e.g. seminar attendance, email outreach, networking with current students in labs of interest). After the student identifies a Major Professor, the student should inform the Graduate Program Coordinator and Graduate Advisor. The Graduate Advisor will continue to review academic progress and confirm the completion of required coursework for the degree objective in the program. The Graduate Advisor will also advise students once they have located a Major Professor by supporting the development of their thesis and oral examination committees. Graduate Advisors assist students throughout their degree, and can assist students with issues related to the Major Professor. The Graduate Advisor contributes to the student's annual assessment, or one or more interim assessments, submitted to Graduate Studies.

Students are expected to identify a **Major Professor** before the end of the third quarter of study. The Major Professor, once found, will advise and provide guidance on the course plan together with the Graduate Advisor. The Major Professor is the chair of the Thesis Committee and is expected to be immediately involved with the planning and execution of the experimental work

done to formulate the thesis. The Major Professor's laboratory is the setting for most of the student's research activities, unless an alternative site and immediate supervisor are approved in advance by the Executive Committee. The Major Professor contributes to the student's annual assessment, or one or more interim assessments, submitted to Graduate Studies.

**Mentoring Guidelines** can be found on the Graduate Studies website at <https://grad.ucdavis.edu/sites/default/files/upload/files/grad-council/mentoring.pdf>.

## 6) Committees:

a) **Admissions Committee:** Once the completed application, all supporting materials, and the application fee have been received, the application will be submitted to the Admissions Committee. Based on a review of the entire application, a recommendation is made to accept or decline an applicant's request for admission. That recommendation is forwarded to the Dean of Graduate Studies for final approval of admission. Notification of admission decisions will be sent by Graduate Studies.

b) **Academic Advising Committee:** The Academic Advising Committee consists of the Chair of the Advising Committee (Master Advisor), at least three FSGG faculty members, and the FSGG Graduate Coordinator (staff). A student may be appointed for contributions to general advising discussions. The Academic Advising Committee, and specifically the Graduate Advisors who make up that Committee, is responsible for the following: (a) assignment of all FSGG students to Graduate Advisors, (b) evaluation of the adequacy of preparative coursework for incoming students, (c) review of FSGG student academic progress and confirm the completion of required coursework for the degree objective in the program, (d) support of students in finding and working with Major Professors, (e) review of the Degree Requirements to meet the current demands of the program, (f) evaluation of course offerings and the laboratory rotation format in the FSGG, (g) developing and distribute guidance practices for student mentoring as recommended by Graduate Council, and (h) evaluation and contributions to annual progress reports of student advisees.

c) **Student Advancement Committee:** The Student Advancement Committee consists of the Chair of the Student Advancement Committee, at least two other FSGG faculty members and the FSGG Graduate Program Coordinator (staff). A student may be appointed for contributions to general advising discussions. The Student Advancement Committee is responsible for the assignment of the Plan II Comprehensive Examination committee.

d) **Thesis Committee and Comprehensive Examination Committee:** Thesis Committee: The Thesis Committee is a three-member committee identified by the student, in consultation with the Major Professor. The chair of the Thesis committee is the student's Major Professor, who must be a member of the FSGG, and must be immediately involved with the planning and execution of the experimental work done to formulate the thesis. Major Professor's laboratory is the setting for most of the student's research activities, unless an alternative site and immediate supervisor are approved in advance by the Executive Committee. The other two Thesis Committee members need not be members of the FSGG. The student's Graduate Advisor must approve the nomination of a Committee member who is not in the MGG. If a nominee is not a member of Academic Senate or Academic Federation, then a current curriculum vitae must be submitted to Graduate Studies with a memo explaining why that person is best suited to be on the committee. Under certain circumstances, a committee member from outside the University of California who has special expertise and qualifications may be nominated to serve on a Thesis Committee. The graduate advisor must submit a brief statement indicating the appointee's affiliation and title, degrees held, and describing the

special expertise that cannot be duplicated on the campus. A curriculum vitae and letter from the nominated person indicating willingness to serve must also be submitted. Nominations to the Thesis Committee are submitted to the Office of Graduate Studies for formal appointment in accordance with Graduate Council policy. The Thesis Committee is responsible for providing guidance on the student's research and for evaluation of the research thesis.

**Comprehensive Examination Committee:** The Comprehensive Examination Committee is a three-member committee identified by the student, in consultation with the Major Professor and Graduate Advisor. The Major Professor must be a member of the committee and will serve as Chair of the committee. The nomination is submitted to the Student Advancement Committee for appointment by the program. The Comprehensive Examination Committee is responsible for assessing the student's proficiency in food science by evaluation of the oral exam and written report.

- 7) **Advancement to Candidacy:** Every student must file an official application for Candidacy for the Degree of Master of Food Science and pay the Candidacy Fee after completing at least one-half of their course requirements and one quarter before completing all degree requirements; this is typically during the 6<sup>th</sup> or 7<sup>th</sup> quarters. The Candidacy for the Degree of Master form can be found online at: <http://www.gradstudies.ucdavis.edu/forms/>. A completed form includes a list of courses the student will take to complete degree requirements. The student must consult with the Major Professor and Graduate Advisor before completing the application. Advancement to candidacy must precede the filing of the M.S. thesis (Plan I) or completion of the M.S. Comprehensive Examination (Plan II).

Students must have their Graduate Advisor and Major Professor sign the candidacy form before it can be submitted to Graduate Studies. If the candidacy is approved, the Office of Graduate Studies will send a copy to the Graduate Program Coordinator and the student; the Major Professor will also receive a copy, if applicable. If changes must be made to the student's course plan after they have advanced to candidacy, the Graduate Advisor must recommend these changes to Graduate Studies.

If the Office of Graduate Studies determines that a student is not eligible for advancement, the program and the student will be told the reasons for the application's deferral. Some reasons for deferring an application include: grade point average below 3.0, outstanding "I" grades in required courses, or insufficient units.

## 8) **Thesis Requirements and Comprehensive Examination:**

### **Thesis Requirements (Plan I):**

**Thesis Committee:** The role of the Thesis Committee is to advise the Master's student on the research topic and methods and then to review the final completed thesis for acceptance. The Thesis Committee is formed by the end of the student's fourth quarter of study. The Thesis Committee Chair should determine the desires of the individual members regarding assistance with the research and thesis review at the time the Thesis Committee is constituted. Students are expected to meet with the Chair of their Thesis Committee regularly.

**Thesis committee meetings:** The candidate and Major Professor must meet at least once with the other members of the thesis committee to discuss progress and any changes in research objectives prior to the submission of the thesis. Students should provide a timeline, developed in consultation with their Major Professor, to the committee at least one quarter before the student expects to

graduate.

**Thesis:** Research for the Master's thesis is to be carried out under the supervision of the Major Professor who is a faculty member and must represent an original contribution to knowledge in the field. The thesis research must be conducted while the student is enrolled in the program. The thesis reports a scholarly piece of work that solves a significant scientific problem in food science. The thesis research must be conducted while the student is enrolled in the program.

The thesis is submitted to each member of the Thesis Committee at least one month before the student before the student expects to submit to graduate studies. Committee members must provide feedback within four weeks of receipt of the thesis, per the *Policy on Service on Advanced Degree Committees* ([GC1998-01](#)). This does not include summer months, for committee members having nine month appointments. The Major Professor or Graduate Advisor should intervene in cases where faculty are not meeting the required timeline.

Once returned, the student will make necessary revisions and return the thesis to the committee for approval or additional revisions. All committee members must approve the thesis and sign the title page before the thesis is submitted to Graduate Studies for final approval. The thesis must be filed either in a quarter in which the student is registered, during summer period between the end of the Spring Quarter and the beginning of Fall Quarter, or when on filing fee. The deadlines for completing this requirement are listed each quarter in the campus General Catalog (available online at the website of the Office of the Registrar).

**Exit Seminar:** The Exit Seminar is a formal public presentation of the student's research before the program faculty and students. The exit seminar must take place prior to the submission of the thesis. Adequate scheduling of the exit seminar is the responsibility of the student. Assistance in scheduling and advertising can be provided by the Graduate Program Coordinator and the Student Advancement Committee. Completion of the Exit Seminar requirement must be verified by the Thesis Committee Chair.

### **Comprehensive Examination (Plan II):**

**Comprehensive Examination Committee:** The Comprehensive Examination Committee is responsible for administering the Comprehensive Oral Examination and review of the research report. Comprehensive Examination Committee is formed before the end of the fifth quarter of study.

**Comprehensive Examination:** Fulfillment of the Comprehensive Examination is the last requirement of the M.S. Plan II. A student may take the Comprehensive Examination once they have advanced to candidacy. However, it is important that the Comprehensive Examination requirement be completed at or near the end of the coursework for the Master's degree; for most students, the exam is taken at the end of the sixth quarter.

The Comprehensive Examination requirement includes both the submission of a research report to the Comprehensive Examination committee and passing a one-hour oral exam administered by that same committee. The report is to be written under the direction of the FSGG Major Professor. The Comprehensive Examination committee will receive the report no later than 14 days prior to the oral examination. The scope of the oral exam is the candidate's coursework as well as the research project work.

The Exam committee's unanimous vote is required to pass a student on the exam. If a



student does not pass the exam, the committee may recommend that the student be reexamined a second time, but only if the Graduate Advisor concurs with the committee. The second exam must take place within one quarter of the first exam. The format of the second exam is the same as that of the first exam and may include the submission of an amended version of the report. The examination may not be repeated more than once. A student who does not pass on the second attempt is subject to disqualification from further graduate work in the program.

Once passed, the Master's Report Form is signed by the Program Graduate Advisor and then forwarded by Graduate Program Coordinator to the Office of Graduate Studies. The deadlines for completing this requirement are listed each quarter in the campus General Catalog (available online at the website of the Office of the Registrar). A candidate must be a registered student or in Filing Fee status at the time the program submits the form, with the exception of the summer period between the end of the Spring Quarter and the beginning of Fall Quarter. The Graduate Program Coordinator must file the report with Graduate Studies within one week of the end of the quarter in which the student's degree will be conferred.

- 9) Progress in the FSGG Program:** Graduate Advisors must file an annual, online progress report with Graduate Studies on each student's progress towards a degree. The report informs the student of the remaining steps necessary to attain the degree and assesses progress as satisfactory, unsatisfactory, or marginal. The student initially fills out the report together with the Major Professor, who evaluates progress, explains the evaluation, and advances the report. The Advisor reviews the reports, discusses the student's progress, and ensures that the student clearly understands what is necessary to complete the degree.

When progress is satisfactory, the report is approved and no further action is necessary until the next year.

When progress is marginal (e.g. academic difficulties, inadequate progress on research, or a thesis committee meeting was not held in the appropriate timeframe), the student's Major Professor must share the information with the Graduate Advisor. The Graduate Advisor, together with the Major Professor, informs the student in writing what must be done to regain satisfactory status. An interim progress report must be completed within 6 months.

When progress is unsatisfactory (e.g. academic difficulties, insufficient progress on research, failure to fulfill previous recommendations to maintain satisfactory progress), the student's Major Professor must share the information with the student and the Graduate Advisor. The Graduate Advisor and Major Professor, and optionally the FSGG Chair, review the situation with the student and decide upon a course of action, which must be communicated to the student in writing in the annual, online progress report and by email. Graduate Studies places the student on academic probation. The Dean of Graduate Studies sends the student a notice delineating the work that must be completed to attain a satisfactory evaluation and the time limit for completing the work. An interim progress report must be completed within 6 months.

Should the student fall short of making satisfactory progress on the thesis at any point in time, the Major Professor or the Graduate Advisor should submit an annual assessment, or one or more interim assessments, to Graduate Studies that describes the marginal or unsatisfactory assessment of the student's progress. Should the committee determine at any point that the student's progress is unacceptable for continuation in the program, even with substantial revisions to the work, the program may recommend to the Dean of Graduate Studies that the student be disqualified from the program.

If the student fails to meet the requirements for satisfactory progress, then the Major Professor must inform the Graduate Advisor. The Graduate Advisor will then request that Graduate Studies place a hold on the student's registration for the next quarter. If a student fails to meet the requirements specified in the letter from the Dean, the program will recommend to Graduate Studies (and concurrently notify the student) that the student be disqualified from further study in the FSGG program.

- 10) Normative Time to Degree:** The student must be in residence for at least one year, but ordinarily it will take two years to meet the M.S. requirements. Additional time may be required by students with English language deficiencies, and by those with academic deficiencies.

**11) Typical Timeline and Sequence of Events:**

<b>Year One</b>	<b>Fall (12 to 15 units)</b>	<b>Winter (12 to 15 units)</b>	<b>Spring (12 units)</b> (Join a lab and identify Major Professor)
	FST201 (4 units) Advanced Food Chemistry and Biochemistry	FST203 (4 units) Advanced Food Processing	FST204 (4 units) Advanced Food Microbiology
	FST290 (2 units) Participatory Seminar	FST290 (2 units) Participatory Seminar	FST290 (1 unit) Participatory Seminar
	FST299 (3 to 6 units) Independent Study (optional: 2 5-week rotations)	FST299 (2 to 6 units) Independent Study (optional: 2 5-week rotations)	FST291 (1 unit) Participatory Seminar
	FST110 (3 units) Food Processing*	FST104 (3 units) Food Microbiology*	FST299 (6 units) Independent Study
	CHE107A (3 units) Physical Chemistry*	FST100C (4 units) Food Physical Chemistry*	
<b>Year Two</b>	<b>Fall (12 units)</b> (Nominate Thesis Committee; advancement to M.S. candidacy (Plan I))	<b>Winter (12 units)</b> (Nominate Comprehensive Examination Committee; advancement to M.S. candidacy (Plan II))	<b>Spring (12 units)</b> Plan I: Submit thesis (by end of 7 <sup>th</sup> quarter). Hold an exit seminar. Plan II: Comprehensive Examination and Report completed
	100 or 200 level elective course (3 units)	100 or 200 level elective course (3 units)	FST299 (12 units) Independent Study
	100 or 200 level elective course (4 units)	100 or 200 level elective course (4 units)	
	FST299 (5 units) Independent Study	FST299 (5 units) Independent Study	

\* Indicates courses that are prerequisites for core courses and which are the most frequently required for M.S. students. The prerequisites can be taken concurrently with the core courses.

Students should notify the Graduate Program Coordinator and Graduate Advisor once they have identified a Major Professor. Students should have identified a Major Professor by the end of the third quarter to make satisfactory progress in the program.

Plan I and Plan II M.S. requirements are typically completed by the end of a student's sixth quarter.

- 12) Sources of funding:** Funding is not guaranteed. Plan II students are generally self- supporting. Students can be supported as Graduate Student Researchers with grant funds from their Major Professors. Some students are also partially supported with Teaching Assistantships.
- 13) PELP, In Absentia and Filing Fee status.** Information about PELP (Planned Educational Leave), In Absentia (reduced fees when researching out of state), and Filing Fee status can be found on the Graduate Studies website: <https://grad.ucdavis.edu/current-students/forms-information>.

## **Ph.D. Degree Requirements**

- 1) Admissions requirements:** There is an annual deadline for submitting an application for admission into the Food Science Graduate Group (FSGG). It is the applicant's responsibility to ensure that all application materials are submitted to the Office of Graduate Studies by the deadline. Consideration for program admission requires a bachelor's degree, three letters of recommendation, official transcripts, GRE General Test scores, TOEFL or IELTS score (if applicable), and an Office of Graduate Studies online application with fee. A minimum GPA of 3.0 or higher (on a 4.0 scale) for undergraduate courses is required. GRE scores from the general test (verbal, quantitative, and analytical) must be submitted. UC Davis Office of Graduate Studies mandates that international students who have not studied at an institution where English is the official language of instruction must obtain the minimum university required score of 80 on the TOEFL or 7.0 (on a 9-point scale) on the IELTS before applying for admission.

Admissions decisions are made on a case-by case basis following a holistic review of each of the applications. The primary requirement for admission is evidence of intellectual achievement, research experience, and demonstrated potential for successful graduate study. Meeting the above criteria does not guarantee admission, but merely eligibility. The decision to recommend admission to the Dean of Graduate Studies will be made by the FSGG Admissions Committee on the basis of available space and the competitiveness of applicants compared to the eligible pool. All inquiries concerning the status of applications for admission should be referred to the Graduate Program Coordinator.

- a)*     **Prerequisites:** In addition to the admission requirements stated above, applicants are expected to have passed background coursework. Students with background deficiencies are encouraged to take as many of these courses as possible prior to their admission to the program. The equivalent UC Davis courses are noted in parenthesis.

The following courses are prerequisites:

*Chemistry:* General Chemistry lectures and laboratory (CHE 2A, 2B, 2C; 15 quarter units); Organic Chemistry lectures with laboratory (CHE 8A, 8B or CHE 118A, 118B, 118C or CHE128A, 128B, 128C and CHE129A, 129B, 129C; at least 6 quarter units)

*Biochemistry:* General Biochemistry (BIS 102, 103 or BIS105; 6 quarter units); Biochemistry laboratory (MCB 120L or FST 123 and FST123L; 2 to 6 quarter units)

*Mathematics:* Analytical Geometry and Calculus (MAT 16A, 16B, 16C; 9 quarter units); Statistics including analysis of variance (STA 100 or FST117; 3 to 4 quarter units).

*Physics:* Physics including laboratory (PHY 7A, 7B, 7C; 12 quarter units).

*Biology:* Introductory Biology (BIS2A; 4 to 5 quarter units)

The following courses are prerequisites for the required core courses. They are not required for admission. If equivalent courses were not taken prior to admission, they must be completed prior to or concurrent with the required Ph.D. core courses FST 203 and FST 204. A total of 4 units from these courses can be applied towards elective units in the graduate degree:

*Physical chemistry:* Physical Chemistry (CHE107A or FST100C; 3 to 7 units)

*Food processing:* Food Processing (FST110; 3 units)

*Food microbiology*: Food Microbiology (FST104; 3 units)

- b) **Deficiencies**: Course work deficiencies (e.g. missing prerequisites) should be made up by the end of the first academic year following initial enrollment by earning a letter grade of “B” or better. These courses cannot be taken on a satisfactory/unsatisfactory basis.

## 2) Dissertation Plan

Plan B. Specifies a three member (minimum) Dissertation Committee and an exit seminar. Plan B also specifies an optional oral exam; the FSGG does not require it.

This plan requires completion of a minimum of 39 units of upper division (100 series) and graduate (200 series) courses, passing a Qualifying Examination, a Dissertation based on original research, and an Exit Seminar. Of the 39 units, 12 units of core coursework, 6 units of participatory seminar, 9 research units (FST299), and 12 units of electives are required for a total of 39 units. At least 6 units of the elective courses must be graduate division courses (200 series). The Qualifying Examination will consist of a research proposal and oral examination. The Dissertation and Exit Seminar serve as the capstone requirement.

## 3) Course Requirements - Core and Electives (total 39 units):

Students must complete the following courses under Plan B.

- a) **Core Courses (total 12 units)**: All students in the program must take the following core courses in food chemistry, food processing, and food microbiology:

Course	Quarter	Units	Title
FST 201	Fall	4	Advanced Food Chemistry and Biochemistry
FST 203	Winter	4	Advanced Food Processing
FST 204	Spring	4	Advanced Food Microbiology

Core courses may not be taken on a satisfactory/unsatisfactory basis.

- b) **Seminar Requirement (at least 6 units)**: All students must take 6 units of graduate seminar. These courses are typically in the FST290 and FST291 series.

- c) **Elective Courses (at least 12 units)**: Students must take at least 12 units of specialized courses reviewed by their Major Professor and approved by their Graduate Advisor. These electives are expected to encompass topics relevant to performing doctoral research and include the major disciplinary areas of including (bio)chemistry, processing, food sustainability, fermentation, microbiology, and sensory and social science. Prerequisites for the required core courses can be included among the electives, however, at least 8 units of the elective courses must be graduate division courses (200 series). These units cannot include FSGG core courses. Students may request that an upper division undergraduate course (100 series) be included among those 8 units of electives, if a similar course on that topic is not offered at the graduate level (200 series) and the course is deemed necessary for the student by the Major Professor. Students should submit such requests to the Graduate Advisor and the final decision is made by Chair of the Academic Advising Committee.

Courses that fulfill any of the program course requirements may not be taken on a pass/no pass

or S/U basis unless the course is normally graded in that way. The inclusion of any variable unit courses toward these 12 units requires the approval of the FSGG Academic Advising Committee.

- d)* **Research requirement (at least 9 units):** All students are expected to have at least 9 units of independent study (299) prior to taking the Qualifying Examination. Students may enroll in up to 12 units of 299 per quarter in order to complete their research project.
- e)* **Lab rotations:** There is no formal requirement for performing research rotations. However, many students perform 2 to 3 rotations at the start of their degree prior to joining a lab. A rotation must not last longer than 5 weeks. Research units (FST299) are provided by the Graduate Advisor or rotation research advisors to support the rotation process.
- f)* **Teaching assistantships:** There is no requirement for a Teaching Assistantship (TA) in the FSGG program. However, students are encouraged to apply for TAs if their professional goals include teaching.
- g)* **English language requirement:** Students who have not obtained a previous degree at an approved English-medium institution or demonstrated English-language proficiency through an appropriate exam (e.g. TOEFL) are required to complete appropriate English-language courses, as described in the policy Graduate Student Course Requirements – English as Second Language (GC2018-02). Courses taken in satisfaction of this requirement do not count towards the units required for graduation.
- h)* **Summary:** A total 39 units comprised of 12 units of core coursework, 6 units of seminar, 9 research units (FST299), and 12 units of electives are required. All course requirements must be fulfilled by the end of the quarter in which the Qualifying Examination is taken. Full-time students must enroll for 12 units per quarter including research, academic, and seminar units. Courses that fulfill any of the program course requirements may not be taken S/U unless the course is normally graded S/U. Once course requirements are completed, students can take additional classes to further develop skills needed to complete their research project, although the 12 units per quarter are generally fulfilled with a research class (299). Per UC regulations, students generally cannot enroll in more than 12 units of graduate level courses (200) or more than 16 units of combined undergraduate and graduate level (100, 200, 300) courses per quarter.

#### 4) Special requirements:

- a)* **Grade Point Average:** Each student must maintain a grade point average (GPA) of at least 3.0 (A = 4) in all upper division (100 series) and graduate courses (200 series). An S or at least a C- must be received in courses intended to fulfill degree requirements. Grades of D+ or lower cannot be used to satisfy the unit requirement but will be counted in determining the GPA. A student may, with the consent of the Graduate Advisor and the dean of Graduate Studies, repeat a course in which the grade of C+ or lower was earned. In such repeated courses, only the most recent grade shall be used in calculating the GPA (although all grades received will be part of the permanent record). No more than 9 units may be repeated. A course taken for a letter grade cannot be repeated on a Satisfactory / Unsatisfactory (S/U) basis.

Courses in the 300-400 series (professional schools) may be accepted if they have been approved by the Academic Advising Committee. Courses graded S/U are not included in calculation of the GPA. If the student's overall GPA is less than 3.0, the student will receive a warning letter from Graduate Studies. If there is little or no improvement in the following quarter, the student is subject to disqualification.

b) **Satisfactory/Unsatisfactory (S/U) Grading:** Variable unit courses and certain other specified courses are commonly graded as Satisfactory/ Unsatisfactory (S/U). The grade of “S” is awarded in graduate courses only for work which otherwise would receive a grade of B- or better and, in undergraduate courses, only for work which would otherwise receive a grade of C- or better.

**5) Advising Structure and Mentoring:** The **Major Professor** is the FSGG faculty member who supervises the student’s research and dissertation and in whose laboratory the Ph.D. research is conducted. This person serves as the Chair of the Dissertation Committee. The (faculty) **Graduate Advisor**, who is appointed by the Dean of Graduate Studies to have signatory authority, is a resource for information on academic requirements, policies and procedures, and registration information. The Graduate Advisor is distinct from the student’s Major Professor. The **Student Advancement Committee** will review Qualifying Exam Pre-proposals and assign Qualifying Exam committee members. The **Graduate Program Coordinator (staff)** is a resource for information on academic requirements, policies and procedures, and registration information.

**Mentoring Plan:** The mentoring team for FSGG students is comprised of the Graduate Advisor and the Major Professor.

**Graduate Advisors** will be assigned to incoming FSGG graduate students before their arrival. The Graduate Advisor will evaluate the adequacy of preparative coursework for incoming students, will assist the student in developing a course plan before their arrival, will provide guidance on research rotations, and will provide guidance on locating a Major Professor. To support guidance on rotations and locating a Major Professor, the Graduate Advisor will direct students towards faculty with research programs related to the student’s stated areas of interest and provide strategies for connecting with faculty (e.g. seminar attendance, email outreach, networking with current students in labs of interest). After the student identifies a Major Professor, the student should inform the Graduate Program Coordinator and Graduate Advisor. The Graduate Advisor will continue to review academic progress and confirm the completion of required coursework for the degree objective in the program. The Graduate Advisor will also advise students once they have located a Major Professor by supporting the development of their thesis and oral examination committees. Graduate Advisors assist students throughout their degree, and can assist students with issues related to the Major Professor. The Graduate Advisor contributes to the student’s annual assessment, or one or more interim assessments, submitted to Graduate Studies.

Students are expected to identify a **Major Professor** before the end of the third quarter of study. The Major Professor, once found, will advise and provide guidance on the course plan together with the Graduate Advisor. The Major Professor is expected to assist in defining the basic area of the Qualifying Exam proposal. The Major Professor is the chair of the Dissertation Committee and is expected to be immediately involved with the planning and execution of the experimental work done to formulate the dissertation. The Major Professor’s laboratory is the setting for most of the student’s research activities, unless an alternative site and immediate supervisor are approved in advance by the Executive Committee. The Major Professor contributes to the student’s annual assessment, or one or more interim assessments, submitted to Graduate Studies.

**Mentoring Guidelines** can be found on the Graduate Studies website at <https://grad.ucdavis.edu/sites/default/files/upload/files/grad-council/mentoring.pdf>.

## 6) Committees:

- a) **Admissions Committee:** Once the completed application, all supporting materials, and the application fee have been received, the application will be submitted to the Admissions Committee. Based on a review of the entire application, a recommendation is made to accept or decline an applicant's request for admission. That recommendation is forwarded to the Dean of Graduate Studies for final approval of admission. Notification of admission decisions will be sent by Graduate Studies.
- b) **Academic Advising Committee:** The Academic Advising Committee consists of the Chair of the Advising Committee (Master Advisor), at least three FSGG faculty members, and the FSGG Graduate Coordinator (staff). A student may be appointed for contributions to general advising discussions. The Academic Advising Committee, and specifically the Graduate Advisors who make up that Committee, is responsible for the following: (a) assignment of all FSGG students to Graduate Advisors, (b) evaluation of the adequacy of preparative coursework for incoming students, (c) review of FSGG student academic progress and confirm the completion of required coursework for the degree objective in the program, (d) support of students in finding and working with Major Professors, (e) review of the Degree Requirements to meet the current demands of the program, (f) evaluation of course offerings and the laboratory rotation format in the FSGG, (g) developing and distribute guidance practices for student mentoring as recommended by Graduate Council, and (h) evaluation and contributions to annual progress reports of student advisees.
- c) **Student Advancement Committee:** The Student Advancement Committee consists of the Chair of the Student Advancement Committee, at least two other FSGG faculty members and the FSGG Graduate Program Coordinator. A student may be appointed for contributions to general advising discussions. The Student Advancement Committee is responsible for developing the format and review metrics of for the Qualifying Examination Pre-Proposals for the Qualifying Examination and assigns the Ph.D. Qualifying Examination committees.
- d) **Qualifying Examination Committee:** The Qualifying Examination (QE) is administered by a committee recommended by the FSGG Student Advancement Committee and appointed by Graduate Studies. The committee consists of five members, one of which is designated Chair. The Qualifying Examination Committee Chair must be an Academic Senate faculty member of the FSGG. The committee cannot include the Major Professor. At least one member will be an Academic Senate member who is not a member of the graduate group. The Committee cannot have more than one member who is not an active member of the Academic Senate, e.g., Emeriti or Cooperative Extension Specialists. The Committee will also consist of at least one member must have expertise in food chemistry, at least one member with expertise in food microbiology, and at least one member with expertise in food processing. The Qualifying Examination Committee conducts the exam and submits the results to the Office of Graduate Studies.
- e) **Dissertation Committee:** The Dissertation Committee is a three-member committee identified by the student, in consultation with the Major Professor. The chair of the dissertation committee is the student's Major Professor, who must be a member of the FSGG, and must be immediately involved with the planning and execution of the experimental work done to formulate the dissertation. The Major Professor's laboratory is the setting for most of the student's research activities, unless an alternative site and immediate supervisor are approved in advance by the Executive Committee. The other two Dissertation Committee members need not be members of the FSGG. The student's Graduate Advisor must approve the nomination of a committee member who is not in the MGG. If a nominee is not a member of Academic Senate or Academic Federation, then a



current curriculum vitae must be submitted to Graduate Studies with a memo explaining why that person is best suited to be on the committee. Under certain circumstances, a committee member from outside the University of California who has special expertise and qualifications may be nominated to serve on a Dissertation Committee. The graduate advisor must submit a brief statement indicating the appointee's affiliation and title, degrees held, and describing the special expertise that cannot be duplicated on the campus. A curriculum vitae and letter from the nominated person indicating willingness to serve must also be submitted. The composition of the Dissertation Committee is entered on the Advancement to Candidacy Form and submitted to Graduate Studies for formal appointment in accordance with Graduate Council policy. The Dissertation Committee is responsible for providing guidance on the student's research and for evaluation of the thesis.

## 7) Qualifying Examination

- a) **Purpose:** The primary purpose of the Qualifying Examination is to validate that the student is academically qualified to conceptualize a research topic, undertake scholarly research, and successfully produce the dissertation required for a doctoral degree. The Qualifying Examination provides an opportunity for the committee to provide important guidance to the student regarding his or her chosen research topic. The Qualifying Examination must also evaluate the student's command of the food science fields of research, ensuring that the student has both breadth and depth of knowledge. The Qualifying Examination must not focus solely on the proposed dissertation research.
- b) **Timing and format:** Students will complete all course requirements before taking their Qualifying Examination. Passing this exam makes the student eligible for advancement to candidacy. It is expected that the Qualifying Examination is taken between the start of the 6<sup>th</sup> quarter of study and the end of the 7<sup>th</sup> quarter. In order to remain in good standing, the Qualifying Examination must be taken no later than the end of the 7<sup>th</sup> quarter of study. Exceptions to this deadline may be requested from the Chair of the Academic Advising Committee. Students must be registered during the quarter in which the Qualifying Examination is taken, with exception of the summer period between the end of the Spring Quarter and the beginning of Fall Quarter.

The Qualifying Examination has written and oral components. For the written element, students prepare a research proposal that describes a relevant and novel research question in food science, related hypotheses, along with experimental and analytical plans to test the hypotheses. The proposal is developed by the student with guidance from the Major Professor. The research proposal provides the foundation for much of the oral examination.

The oral examination is intended to facilitate dialogue between the student and the committee. As such, in-person attendance by all committee members is required, except in cases of special advance approval from Graduate Studies.

The oral examination consists of two parts. For the first part, students are required to present and defend their research proposal, including experimental design and methodology, actual and expected results, and their connection to resolving the stated hypothesis. For the second part, students will be tested on their breadth of knowledge in the three core areas of food science: chemistry, microbiology, and processing/engineering.

- c) **Pre-proposal application:** In preparation for the Qualifying Examination, students submit a two page pre-proposal application to the Student Advancement Committee that briefly captures the essential elements of their intended research proposal (one page) and provides suggestions for Qualifying Examination committee membership (one page). The application form is provided by the Graduate Program Coordinator.

Students can suggest up to 8 committee members in the pre-proposal application, including the Chair. The Qualifying Examination Committee Chair must be an Academic Senate faculty member of the FSGG. The committee cannot include the Major Professor. At least one member will be an Academic Senate member who is not a member of the graduate group. The committee cannot have more than one member who is not an active member of the Academic Senate, e.g., Emeriti or Cooperative Extension Specialists. The committee will also consist of at least one member least one member with expertise in food chemistry food chemistry, least one member with expertise in food chemistry food microbiology, and least one member with expertise in food chemistry food processing.

The research pre-proposal should be no more than one page in length and must clearly and concisely state the justification for the work, central hypothesis, specific aims or sub-hypotheses, general experimental approach, and data analyses that will be performed to confirm or reject the hypotheses. References may be included and do not contribute towards the one-page limit. The pre-proposal is reviewed by the Student Advancement Committee to determine if the proposed research has sufficient research scope and depth and general relevance to food science. Additionally, the Student Advancement Committee considers the pre-proposal when determining the composition of the Qualifying Examination Committee.

The pre-proposal should be submitted by the date set by the Student Advancement Committee, typically in the Fall or Winter of the second year. The Graduate Program Coordinator will relay the completed application to the Student Advancement Committee, who will consider the student's suggestions. The Student Advancement Committee may require revisions to the pre-proposal prior to acceptance and may provide specific guidance on aspects that should be strengthened or addressed in the research proposal. The final composition of the Qualifying Examination Committee is set by the Student Advancement Committee. The QE Committee may differ significantly from the student's suggested list.

After the Student Advancement Committee approves of the proposal and names the members for the Qualifying Examination Committee, the student must submit a Qualifying Examination Application to the Office of Graduate Studies (form available at <https://grad.ucdavis.edu/current-students/forms-information>). The student may then meet with the Qualifying Examination Committee members individually to help guide preparation for the exam, refine the research proposal, and schedule the exam. If the Qualifying Examination Committee membership changes within one month of the examination date, the student may have the examination rescheduled.

- d) **Research Proposal:** The written portion of the exam consists of a research proposal. The proposal is a brief (4 to 5 single-spaced pages, 0.5 to 1-inch margins, minimal font size 11 in Arial or size 12 in Times New Roman) description of the proposed research. The proposal must be centered around a well-stated hypothesis concerning a problem in food science, or one of the disciplines related to food science. The proposal should describe the background, justification, specific aims, procedures and methods of data analysis. References to the key literature must be cited. Preliminary data may be included but are not required. Students may

wish to address any possible pitfalls and their potential solutions as part of the proposal, particularly if preliminary data is not available to validate proposed methods or confirm expected phenomena.

The Major Professor is expected to assist in defining the basic area of the proposal. However, it is the student's ability to design Ph.D.-level research that is to be evaluated, not the research program of the research advisor. The proposal should not merely be a restatement of the Major Professor's ongoing or proposed research programs. It is recognized that the student may be working on a project that has been proposed by the advisor, but the advisor should be careful to allow the student to have significant creative input and to support the student in developing a proposal that is appropriate for doctoral research. The written proposal should be prepared by the student. The research advisor should provide guidance, but the final document is expected to be the product of the student.

The proposal should be provided to members of the Qualifying Examination Committee at least business 10 days before the exam. The Qualifying Exam Committee will be responsible for assessing that the student's writing proficiency is satisfactory before advancement to candidacy. Furthermore, the proposal will provide information that will be discussed during the oral exam.

- e) **Oral Portion of the Exam:** The oral portion of the Qualifying Examination will be 2 to 3 hours in length and is intended to demonstrate the student's critical thinking ability, powers of imagination and synthesis, and broad knowledge of the field of study. The committee will evaluate the student's general qualifications for a respected position as an educator or leader as well as the student's preparation in a special area of study based upon relevant portions of the student's previous academic record, performance on specific parts of the examination, and the student's potential for scholarly research as indicated during the examination.

Prior to the exam: The student should discuss the written proposal with the Chair and committee members at least one month before the exam. Additional meetings are possible and based on the discretion of the committee. Students should not ask for a "pre-exam"-like critique. Rather, the meetings can be used to introduce the scope and direction of the project as well as to provide the opportunity to discuss specific bodies of knowledge that may be included in the exam. It is the responsibility of the Chair to verify that the written proposal is appropriate in a general sense; i.e., that it conforms to the expectation of the group in style, degree of detail and general content. However, the Chair is not responsible for providing a detailed scientific critique of the project or the proposal; the chair does not conduct a pre-examination.

Oral presentation of research proposal: During the first part of the examination, the student will deliver an oral presentation of their proposed research. The goal of the examination committee is to evaluate how the student constructs scientific questions, considers the experimental methods needed to resolve those questions, and interprets the impact of those answers to the field of food science. The presentation should last approximately 20 to 30 minutes and be based on the written research proposal. The presentation can use written notes, including the chalk board (white board) but not digital content or slides. Including discussion, this portion of the exam typically lasts for 1.5 to 2 hours. The presentation should be clearly organized, with emphasis on the more central aspects of the project. The objective of this portion of the examination is to use the presentation as the foundation for a

comprehensive and critical evaluation of the problem (hypothesis) and appropriate experimental methods designed to resolve the hypothesis.

Oral exam on general knowledge: The general knowledge portion of the exam typically takes between 1 to 1.5 hours. The goal of this portion of the examination is to evaluate the student's ability to demonstrate a general understanding of important principles and issues in food science. Regardless of area of specialization, students are expected to demonstrate knowledge on the fundamentals of food chemistry, food processing and food microbiology at the level of the core graduate courses, or advanced undergraduate courses, if the material is outside the scope of core courses. Students should consider the graduate core course material as advisory rather than prescriptive to the expected body of knowledge.

*f* **Outcome of the Exam:** The committee will reach a decision on the student's performance immediately after the oral exam and provide the examination report to Graduate Studies within 72 hours. The committee will inform the student of its decision to:

- "Pass" (no conditions may be appended to this decision),
- "Not Pass" (the Chair's report should specify whether the student is required to retake all or part of the examination, list any additional requirements, and state the exact timeline for completion of requirements to achieve a "Pass"), or
- "Fail".

If a unanimous decision takes the form of "Not Pass" or "Fail", the Chair of the Qualifying Examination Committee prepare a specific statement, agreed to by all members of the committee, explaining the Committee's decision and will share this statement with the student and the student's Major Professor.

Having received a "Not Pass" the student may attempt the Qualifying Examination one additional time. The Qualifying Examination report must list the specific conditions and timing for the second exam. After a second examination, a vote of "Not Pass" is unacceptable; only "Pass" or "Fail" is recognized.

Should the student receive a "Fail" on the first or second attempt at the exam, the student may be eligible to receive the M.S. degree if all the requirements for the M.S. have been fulfilled (see section 16) or will be recommended for disqualification from the program to the Dean of Graduate Studies.

Should the committee fail to reach a unanimous decision after in-person deliberation, the committee will include in its report a statement of the majority and minority opinions of the committee. The committee chair will provide the report and accompanying statements to Graduate Studies within 72 hours.

**8) Advancement to Candidacy:** Before advancing to candidacy for a doctoral degree, a student must have satisfied all requirements set by the graduate program, must have maintained a minimum GPA of 3.0 in all course work undertaken (except those courses graded S or U), and must have passed a Qualifying Examination before a committee appointed to administer that examination. To maintain satisfactory progress in the FSGG program, students should advance by the end of the 9th quarter. The student must file the appropriate paperwork with the Office of Graduate Studies and pay the Candidacy Fee in order to be officially promoted to Ph.D. Candidacy.

## **9) Dissertation requirements**

*a* **General information:** The degree of Doctor of Philosophy is given under dissertation Plan B,

which specifies a three member (minimum) Dissertation Committee. All students are required to present an exit seminar.

Filing of a Ph.D. dissertation with the Office of Graduate Studies is the last requirement satisfied by the candidate. The deadlines for completing this requirement are available at the Office of Graduate Studies. A candidate must be a registered student or in Filing Fee status at the time of filing a dissertation, with the exception of the summer period between the end of the Spring Quarter and the beginning of Fall Quarter. The Ph.D. Dissertation will be prepared, submitted and filed according to regulations instituted by the Office of Graduate Studies.

- b) **Dissertation Committee:** The role of the Dissertation Committee is to advise the doctoral student on the research topic and methods and then to review the final completed dissertation for acceptance. The Dissertation Committee is formed within three months after passing the Qualifying Examination. The Dissertation Committee Chair should determine the desires of the individual members regarding assistance with the research and dissertation review at the time the Dissertation Committee is constituted. Students are expected to meet with the Chair of their Dissertation Committee regularly.
- c) **Dissertation Committee meetings:** Yearly meetings of the student and Dissertation Committee are required. The student is responsible for scheduling a group meeting with the Dissertation Committee. The meeting should include a presentation with the following components: the dissertation outline, details on the research progress and challenges for individual chapters in the dissertation, a timeline containing plans for the completion of the research, writing and submission of the dissertation.
- d) **Dissertation:** The research conducted by the student must be of such character as to show ability to pursue independent research. The dissertation reports a scholarly piece of work of publishable quality that solves a significant scientific problem in the field and is carried out under the supervision of a faculty member while the student is enrolled in the program. The chair of the Dissertation Committee is the Major Professor and must be immediately involved with the planning and execution of the experimental work done to formulate the dissertation. The Major Professor's laboratory is the setting for most of the student's research activities, unless an alternative site and immediate supervisor are approved in advance by the Chair of the FSGG program. Instructions on preparation of the dissertation are available from the Office of Graduate Studies.

The dissertation should be submitted to each member of the Dissertation Committee at least six weeks before the student expects to submit to graduate studies. Informing committee members of progress as writing proceeds (prior to submitting to the Dissertation Committee) helps the members to plan to read the dissertation and provide feedback within this time-frame. Committee members must provide feedback within four weeks of receipt of the thesis, per the *Policy on Service on Advanced Degree Committees* ([GC1998-01](#)). This does not include summer months, for committee members having nine month appointments. The Major Professor or Graduate Advisor should intervene in cases where faculty are not meeting the required timeline.

Once returned, the student will make necessary revisions and return the dissertation to the committee for approval or additional revisions. The dissertation must be approved and signed by the all members of the Dissertation Committee before it is submitted to Graduate Studies

for final approval. The dissertation must be filed either in a quarter in which the student is registered, during summer period between the end of the Spring Quarter and the beginning of Fall Quarter, or when on filing fee. The deadlines for completing this requirement are listed each quarter in the campus General Catalog (available online at the website of the Office of the Registrar).

- e) **Exit Seminar:** The Exit Seminar is a formal public presentation of the student's research before the program faculty and students. The exit seminar must take place prior to the submission of the dissertation. Adequate scheduling of the exit seminar is the responsibility of the student. Assistance in scheduling and advertising can be provided by the Graduate Program Coordinator and the Student Advancement Committee. Completion of the Exit Seminar requirement must be verified by the Dissertation Committee Chair.

- 10) **Progress in the FSGG Program:** Graduate Advisors must file an annual, online progress report with Graduate Studies on each student's progress towards a degree. The report informs the student of the remaining steps necessary to attain the degree and assesses progress as satisfactory, unsatisfactory, or marginal. The student initially fills out the report together with the Major Professor, who evaluates progress, explains the evaluation, and advances the report. The Advisor reviews the reports, discusses the student's progress, and ensures that the student clearly understands what is necessary to complete the degree.

When progress is satisfactory, the report is approved and no further action is necessary until the next year.

When progress is marginal (e.g. academic difficulties, inadequate progress on research, or a thesis committee meeting was not held in the appropriate timeframe), the student's Major Professor must share the information with the Graduate Advisor. The Graduate Advisor, together with the Major Professor, informs the student in writing what must be done to regain satisfactory status. An interim progress report should be completed within 6 months.

When progress is unsatisfactory (e.g. academic difficulties, insufficient progress on research, failure to fulfill previous recommendations to maintain satisfactory progress), the student's Major Professor must share the information with the student and the Graduate Advisor. The Graduate Advisors and Major Professor, and optionally the FSGG Chair, review the situation with the student and decide upon a course of action, which must be communicated to the student in writing in the annual, online progress report and by email. Graduate Studies places the student on academic probation. The Dean of Graduate Studies sends the student a notice delineating the work that must be completed to attain a satisfactory evaluation and the time limit for completing the work. An interim progress report should be completed within 6 months.

If the student fails to meet the requirements for satisfactory progress, then the Major Professor must inform the Graduate Advisor. The Graduate Advisor will then request that Graduate Studies place a hold on the student's registration for the next quarter. If a student fails to meet the requirements specified in the letter from the Dean, the program will recommend to Graduate Studies (and concurrently notify the student) that the student be disqualified from further study in the FSGG program.

- 11) **Normative Time to Degree:** The student must be in residence for at least two years, but ordinarily it will take five years and one quarter to meet the Ph.D. requirements. Additional time may be required by students for which English is not the primary language and by those

with academic deficiencies.

## 12) Typical Time Line and Sequence of Events:

<b>Year One</b>	<b>Fall (12 to 15 units)</b>	<b>Winter (12 to 15 units)</b>	<b>Spring (12 units)</b> (Join a lab and identify Major Professor)
	FST201 (4 units) Advanced Food Chemistry and Biochemistry	FST203 (4 units) Advanced Food Processing	FST204 (4 units) Advanced Food Microbiology
	FST290 (2 units) Participatory Seminar	FST290 (2 units) Participatory Seminar	FST290 (1 unit) Participatory Seminar
	FST299 (3 to 6 units) Independent Study (optional: 2 5-week rotations)	FST299 (2 to 6 units) Independent Study (optional: 2 5-week rotations)	FST291 (1 unit) Participatory Seminar
	FST110 (3 units) Food Processing*	FST104 (3 units) Food Microbiology*	FST299 (6 units) Independent Study
	CHE107A (3 units) Physical Chemistry*	FST100C (4 units) Food Physical Chemistry*	
<b>Year Two</b>	<b>Fall (12 units)</b> (Submit preproposal for WE)	<b>Winter (12 units)</b> (Schedule QE and meet with QE committee)	<b>Spring (12 units)</b> (Take QE and advance to candidacy)
	100 or 200 level elective course (3 units)	100 or 200 level elective course (3 units)	FST299 (12 units) Independent Study
	100 or 200 level elective course (4 units)	100 or 200 level elective course (4 units)	
	FST299 (5 units) Independent Study	FST299 (5 units) Independent Study	
<b>Years Three to Four</b>	<b>Fall (12 units)</b> (Take QE and advance to candidacy)	<b>Winter (12 units)</b>	<b>Spring (12 units)</b>
	FST299 (12 units) Independent Study	FST299 (12 units) Independent Study	(Meet with Dissertation Committee; file progress report) FST299 (12 units) Independent Study
<b>Year Five</b>	<b>Fall (12 units)</b>	<b>Winter (12 units)</b>	<b>Spring (12 units)</b>
	FST299 (12 units) Independent Study	FST299 (12 units) Independent Study	(submit dissertation to committee, hold an exit seminar on dissertation research, file dissertation with graduate studies) FST299 (12 units) Independent Study

### Footnotes to the table:

\* Indicates courses that are prerequisites for core courses and which are the most frequently required for Ph.D. students. Prerequisites can be taken concurrently with the core courses.

Students should notify the Graduate Program Coordinator and Graduate Advisor once they have selected a Major Professor. Students should have joined a lab by the end of the Spring Quarter of Year 1 to make satisfactory progress in the program.

Pre-proposals should be submitted to the Student Advancement Committee before the date set by that committee, typically during the Fall or Winter Quarter of Year 2. The Qualifying Examination is typically scheduled between the Spring Quarter of Year 2 and the Fall Quarter of Year 3.

PhD requirements are typically completed by the end of a student's fifth year.

- 13) Sources of funding:** Funding is not guaranteed. Students are encouraged to apply for external funding. Students may be supported as Graduate Student Researchers with grant funds from their Major Professors. Some students are also partially supported with Teaching Assistantships.
- 14) Transferring from the M.S. to the Ph.D. program:** Students in the FSGG M.S. program are eligible to apply to the Ph.D. program during the 4<sup>th</sup> quarter of study. Applications for transfer from the FSGG M.S. Program to the Ph.D. program are due by the deadline set by Admissions Committee. Applications will be reviewed by the Admissions Committee. Interested students must complete the FSGG Ph.D. application through the program office and a Change of Degree Objective through the Registrar's Office. To be considered for transfer, the application must show significant progress in M.S. research demonstrative of Ph.D. level research.
- 15) Leaving the program prior to completion of the Ph.D.:** Should a student leave the program prior to completing the requirements for the Ph.D., he or she may be eligible to receive the M.S. degree if all the requirements for the M.S. have been fulfilled. (see Master's requirements). The Change of Degree Objective form is available from the Registrar's Office. Students must have their Graduate Advisor and committee Chair sign the Change of Degree Objective form before it can be submitted to Graduate Studies.
- 16) PELP, In Absentia and Filing Fee status.** Information about PELP (Planned Educational Leave), In Absentia (reduced fees when researching out of state), and Filing Fee status can be found on the Graduate Studies web page:  
<https://grad.ucdavis.edu/current-students/forms-information>