

CHEMICAL ENGINEERING GRADUATE STUDENT HANDBOOK

Department of Chemical Engineering
and Materials Science

University of California, Davis

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I. ACADEMIC INFORMATION

Graduate research is the cornerstone upon which an outstanding academic department is built. An important element of this research activity is how students interact with faculty. We strive for an environment within the Department that nurtures and promotes collegial interaction between the graduate student body and the faculty. This is best achieved when *graduate students are viewed as junior colleagues*. We believe that such a spirit can flourish only when the faculty are clearly committed to providing outstanding dissertation/thesis advising, necessary financial support for the students, and the needed resources required for the active pursuit of research objectives. Graduate students, in turn, are expected to apply their intellectual and creative skills to achieve the advanced degree objectives set before them. The Department is committed to the goal that all graduate students making satisfactory progress toward their degree objectives receive ample advising and adequate financial support.

The purpose of this document is to describe the degree requirements for the Ph.D. (Doctor of Philosophy) and M.S. (Master of Science) in Chemical Engineering, outline the major milestones in each program, delineate the responsibility of the faculty and students in meeting the Department's policy objective, and to familiarize graduate students with departmental procedures and policies. It is important to point out that the University (i.e., Academic Senate/Graduate Studies), the College of Engineering, and the Department of Chemical Engineering and Materials Science each have their own set of requirements and a student must satisfy all three sets. In this document, the most *restrictive* requirements of the three sets are defined to provide the most useful, concise and thorough guidelines. Do not be misled, however, by less stringent requirements you may find in other documents. Students may satisfy degree requirements in effect at the time of their admission or requirements in effect at any time during their graduate studies. If you have any questions, concerns or comments about this handbook please contact your Graduate Adviser for Chemical Engineering.

A. FACULTY RESOURCES

Graduate Advisers: The Graduate Advisers for Chemical Engineering in the Department of Chemical Engineering and Materials Science are a resource for all graduate students in chemical engineering to provide information and advising on academic requirements, policies and procedures (Graduate Studies, College, and Departmental). A Chemical Engineering Graduate Adviser's signature is required on a number of important documents such as the student's Program of Study, petitions related to course work, Planned Educational Leave Program (PELP), annual student progress reports, and Advancement to Candidacy. The Graduate Advisers serve as intermediaries in issues related to student progress. The Graduate Advisers also serve as intermediaries in issues related to student progress. Each incoming graduate class is assigned a Chemical Engineering Graduate Adviser who shall remain until the last student in the class graduates.

Major Professor (Research Adviser): A student's Major Professor is the faculty member who assists the student in preparing a detailed study program and in supervising the research that forms the basis for the preparation of the dissertation/thesis. The Major Professor serves as the chairperson of the student's Guidance and Reading Committee (dissertation/thesis committee; see Sections I-B-4 and I-C-3 for discussion), and is in charge of the 290C and 299 research course work taken; however, the major professor does not serve on the student's qualifying examination committee (see Section I-B-6). The Major Professor is sometimes also referred to as the student's research adviser. Masters and doctoral students are normally advised or co-advised by a faculty member in the Department of Chemical Engineering and Materials Science; however, they may be advised by a faculty member outside the Department and/or College provided the adviser is a member of the Graduate Program in Chemical Engineering & Materials Science (see [Membership List](#)) and that the student and Major Professor adhere to the requirements and policies set forth in this document. In the situation that the student would like to work for a Professor who is not a member of the Graduate Program in Chemical Engineering and Materials Science, special arrangements can be made provided that an official Major Professor who is a member can be identified. Specific responsibilities of major professors are outlined in Section I-B-12.

Chair of the Graduate Affairs Committee: The Chair of the Graduate Affairs Committee (GAC) in the Department of Chemical Engineering and Materials Science serves to assist the Graduate Advisers, the Graduate Coordinators, and the Departmental Chair, in carrying out their duties with respect to graduate affairs. The Chair of the GAC serves as chair of the Graduate Admissions Committee and serves on the College Graduate Studies Committee.

Graduate Coordinator: The Graduate Coordinator in the Department of Chemical Engineering and Materials Science is a resource for faculty and chemical engineering graduate students. The Graduate Coordinator's job is to ensure students receive the most-up-to date academic information, forms and answer any questions a student may have, no matter how complex, simple, or unusual they may be. The Graduate Coordinator interprets and implements policies and administers graduate activities for the Department.

B. DOCTOR OF PHILOSOPHY DEGREE IN CHEMICAL ENGINEERING

The awarding of a Ph.D. acknowledges an individual's ability to perform original and creative research. A graduate student pursuing a Ph.D. should be cognizant of the fact that a Ph.D. is not simply a matter of following the daily instructions of a Major Professor. A candidate for a Ph.D. is expected to demonstrate the ability to make independent and critical assessments of research in his/her field of study, be capable of proposing original ideas and translating these ideas into hypotheses that can be tested through experiments or theory. The candidate for a Ph.D. is also expected to communicate his/her original research in written and/or oral forms in professional venues.

1. General Requirements

The doctor of philosophy degree in chemical engineering will be awarded upon completion of the required course work described below (and approval of the program of study), passing the program Ph.D. preliminary exam, passing the qualifying examination, and approval of a dissertation by the student's dissertation committee. The Ph.D. program in Chemical Engineering is typically a four year program and a minimum of six quarters of academic residence is required. A student is in academic residence when enrolled in at least 4 units of approved upper division or graduate courses, including research. Enrollment in at least 4 units of upper division or graduate level courses during two summer sessions may be counted as the equivalent of one quarter of academic residence. However, students must enroll for a minimum of 12 units per quarter to be considered in full-time status. Residence for the M.S. degree can be used to satisfy requirements for a doctoral degree. Arrangements can also be made to satisfy part of a residence requirement by study on another campus of the University of California. Doctoral students are also required to serve as a TA/AI for at least three quarters during the course of their residence at Davis (the percentage of the appointment is irrelevant), and at least one of these assignments should be for one of these laboratory courses (ECH 155A, 155B, 161L, E45). **It is recommended that graduate students complete their TA requirement before the beginning of fall quarter of their fourth year.** The quarters in which the student will TA are agreed upon between the student, Graduate Coordinator, Major Professor, and Graduate Adviser.

2. Course Work Requirements

Course work requirements for the Ph.D. program specify a minimum of 26 units of course work in the major (Chemical Engineering) and 12 units of course work in the minor (to be selected by the student in consultation with his/her Guidance Committee) for a total of 38 units. Of the 38 units, 30 units must be in graduate courses, exclusive of seminar and research course work units. The minor must represent a set of coherent courses which complement the major. At least 20 of the 26 units in the major must be graduate courses and at least 9 of the 12 units of minor course work must be graduate level courses. See Section I-D for a discussion of transfer credit from other universities. The course work taken by a Ph.D. student to satisfy these requirements is listed on the student's Program of Study (See Section I-B-4 for a discussion of the Program of Study). All courses listed on

the Program of Study must be taken for a letter grade. Of the 26 units of major course work, 20 units must be comprised of the following "core" graduate courses in Chemical Engineering:

Table 1. Core Chemical Engineering Graduate Courses.

Course	Title	Units	Quarter
ECH 252	Statistical Thermodynamics	4	Fall
ECH 253A	Advanced Fluid Mechanics	4	Fall
ECH 253C	Advanced Mass Transfer	4	Fall
ECH 259	Advanced Engineering Mathematics	4	Fall
ECH 256	Chem Kinetics and Reaction Engineering	4	Winter

The remaining courses in the major may be chosen from outside of ECH courses. These courses must employ concepts common to chemical engineering or the relevant industries.

Courses for the minor may be selected from courses offered by the Department and/or from courses outside the Department (e.g., other Engineering Departments, Mathematics, Physics, Chemistry, Biological Sciences, etc. All registered graduate students who have not yet advanced to candidacy must enroll in ECM 290, Seminar, each quarter during their graduate study; a passing grade will be contingent upon satisfactory attendance at the seminars. **It is highly recommended for graduate students who have passed the qualifying exam to enroll in ECM 290 one quarter per year at a minimum.** A student performing research off-site may request an exception to ECM 290 by writing a letter to his/her Graduate Adviser. Once a Major Professor has been designated, students should enroll in 299, Graduate Research, and 290C, Graduate Research Group Conference. Students who enter the program with an assigned Major Professor may begin their research immediately. The minimum number of hours a student is expected to devote to 299 courses is about three hours of research per week per unit of 299. Course 299 may also be used to prepare for the Ph.D. preliminary evaluation or qualifying examination. 290C is a one-unit conference course designed to allow students to discuss their research progress with their Major Professor in a group setting on a regular basis. Students appointed by the Department of Chemical Engineering and Materials Science as teaching assistants or associate-ins are expected to enroll in the course 390, Teaching of Chemical Engineering, with the professor in charge of the assigned class (1 unit graded S/U; may be repeated once for credit up to 2 units).

Courses in addition to those needed to satisfy degree or program requirements (i.e., courses not included in the Program of Study) may be taken on a satisfactory/unsatisfactory grading basis if they are exploratory in nature. However, in accordance with Graduate Council policy, only one course per quarter may be taken on this basis. Graduate credit is not allowed for a course in which a grade below "C" is received. Grades received in lower division courses (numbered 1 to 99) are not counted in determining grade-point averages. However, all upper-division 100 series course grades are included, even if the course is one normally required for a bachelor's degree and is being taken to complete background requirements. Any student may, with the consent of his/her Graduate Adviser and the Dean of Graduate Studies, repeat a course in which the student received a grade of C, D, F or Unsatisfactory up to a maximum of 9 units. In such repeated courses, only the most recently received grade and corresponding grade points shall be used in calculating a student's grade-point average, but all units attempted and grades received shall remain part of the student's permanent record. Any repeated course, except for those only offered on a S/U basis, must be taken for a letter grade (A, B, C, D, F).

3. Selection of a Major Professor

One of the most critical decisions that a student makes in her/his career is the selection of a Major Professor. The selection of a Major Professor and a research topic is an important decision and requires careful thought because

the dissertation research is the principal activity of a graduate student, and often determines the future career directions of the student. Outlined below is the procedure to be followed:

- (i) At the beginning of the fall quarter, the program will provide all first year graduate students (FYGS) and continuing M.S. students with a list of topics for M.S. and Ph.D. theses, and the status of funding for the listed projects. This information will also be given during graduate student recruiting visits. In lieu of a list of topics, the faculty may present PowerPoint presentations or discuss their available projects.
- (ii) FYGS (and continuing M.S. students) will make appointments to meet individually with at least 6 faculty members during fall quarter to discuss specific details of proposed research projects.
- (iii) Students have until the third Friday of November to submit to the Graduate Program Coordinator a list with their first, second, and third choices for Major Professor and dissertation topic. The program expects all students to choose funded projects. The faculty will meet the week after the deadline to recommend major professors for the FYGS. Every effort will be made to ensure that the students receive their first choice of major professor. However, such recommendations may not always be possible, as extramural funding and the number of students who may have selected the same project must be taken into account. The program's priority is to place FYGS on funded projects because it believes it is to the student's advantage; however, the student has the option to accept or decline the program's recommendation.
- (iv) If a FYGS elects to pursue an advanced degree with an unfunded project, then the Program Chair will inform the student in writing of the consequences such a decision will have on the financial offer made to the FYGS. The department will not normally make up funding deficiencies in this situation by TA or block grant funds.

4. Guidance and Reading Committee Selection/Program of Study

During the winter quarter of the first year, after the student has selected a Major Professor, the student and Major Professor develop a Program of Study and propose two additional faculty members to serve on the student's Guidance and Reading Committee (Dissertation Committee). The student should then contact these faculty to determine if they are willing to serve on this committee and discuss the proposed Program of Study with them (see <http://chms.engineering.ucdavis.edu/students/graduates/index.html>). With the advice of the Guidance Committee, each student develops a meaningful sequence of courses. The technical strengths and weaknesses of the student are considered and the program is individually tailored in such a way that the student obtains a strong overall technical background at the doctoral level. The choice of the minor field of study is determined by the student in consultation with his/her Guidance Committee. There is great flexibility in tailoring doctoral programs to meet the student's objectives, but the Graduate Adviser may not approve the Program of Study if the minor field is so loosely defined that the courses lack cohesiveness, or if a large fraction of the course work is at the undergraduate level (more than three units).

The Program of Study must be approved by the Guidance and Reading Committee (Dissertation Committee) and the Graduate Adviser before the student can take the Ph.D. preliminary evaluation (See Section 5 below). This should be submitted to the Graduate Coordinator by the last day of the winter quarter of the first year. The student will receive a copy of their approved program. Since Chemical Engineering Ph.D. students will normally take the qualifying exam by the end of the winter quarter of their second year, the Program of Study must demonstrate the student's plan to complete the required course work by the end of the winter quarter of their second year. These expectations move to the fall quarter of their second year for students who entered the program with Master's Degree in Chemical Engineering or closely related fields.

A student who does not have a background in Chemical Engineering or a closely related field is required to meet with his/her Graduate Adviser before the first quarter in residence in order to plan a schedule of coursework that addresses undergraduate subject matter necessary for taking the core courses and allows the student to finish

all of the core coursework in less than 2 years. The Guidance and Reading Committee will provide additional input in the winter quarter of the first year to develop a Program of Study that can be completed no later than the end of the spring quarter of the second year.

5. Program Ph.D. Preliminary Evaluation

The Ph.D. preliminary evaluation is the first evaluation of prospective Ph.D. students by the program faculty. The objective of this evaluation is to determine the probability of a student successfully completing the doctoral program. The Ph.D. preliminary evaluation includes an evaluation of the student's performance on an oral presentation (described below), as well as course grades and previous performance in scholarly activities. Students will declare their intent to take the preliminary examination during their first winter quarter of graduate study. A UCD GPA of 3.25 or higher is required to take the Ph.D. preliminary evaluation. Students with a GPA between 3.25 and 3.5 should ask their major professor to write a confidential letter to be included in the student's evaluation file. These letters should be submitted to the Graduate Program Coordinator one week prior to the preliminary evaluation date. All FYGS, including master's degree students, are encouraged to take the Ph.D. preliminary evaluation so that they may elect to pursue a Ph.D. at a later stage. Students entering with a Chemical Engineering (or closely related) background must complete all core courses offered in fall and winter before taking the Ph.D. preliminary exam. All other students may take the preliminary examination if they have completed all but one of the core courses offered in fall and winter.

The following procedure should be followed:

- (i) By the third week of the spring quarter of the first year, students will be required to make an oral presentation of their proposed research project.
- (ii) One week prior to the oral presentation, the students will be required to submit a written summary of not more than 1000 words to the Graduate Program Coordinator.
- (iii) The suggested format of the oral presentation is a 15 minute, uninterrupted oral presentation by each student; 10 minutes of questions by faculty; 15 minutes of discussion among the faculty in the absence of the student. If possible, all presentations will be held on one day. A forum of at least seven faculty members is required for each oral presentation. This group of faculty may include the Major Professor associated with a particular project.
- (iv) The following guidelines are suggested to help students with their preparation for the preliminary exam:
 - (a) The oral presentation and written summary should be based on a review of what would normally be approximately three to six papers that are directly relevant to the research project of the student. The student should consult his or her adviser for direction toward a few key papers, and should then make use of additional literature as well.
 - (b) The student should present a coherent summary of recent progress in the area of interest. The student should clearly identify the major advances in the area, identify the papers relevant to those advances, and explain why they are important and how they relate to the proposed research. Students should not attempt to present uniformly all the information in every paper, but rather should carefully select the material that they choose to present. A *comprehensive* review of most topics will not be possible in a 15 minute presentation or a 1000 word written summary. The 15 minute time limit on presentations will be strictly enforced.
 - (c) The oral presentation and written summary should consist of three sections that can be easily identified by the faculty: (1) the broad objectives of the proposed research; (2) a critical review of literature with an explanation of its relevance to the objectives of the proposed research; and (3) a brief explanation of the proposed experimental/theoretical methods with a tentative schedule.

- (v) In making their assessment of a student's performance, the faculty will include consideration of the following factors:
 - (a) Each student will be assessed on their ability to critically review a portion of the literature that is relevant to their research topic.
 - (b) The ease with which a body of literature can be understood varies greatly from topic to topic; in particular, interdisciplinary topics will require a student to comprehend new vocabulary and terminology. Faculty will be sensitive to this issue in evaluating student progress.
 - (c) The performance of a student will not be based either on the technical merit of the proposed research project or on evidence of research results.
- (vi) The student's performance in the oral presentation will be assigned a grade of "excellent," "good," "fair" or "poor." In addition, a written summary will be provided on the student's overall performance in both the oral and written parts of the exam. These results will be assessed along with the student's graduate and undergraduate academic transcripts in a subsequent faculty meeting. The outcome will be one of three possibilities:
 - (a) Student permitted to continue in the program.
 - (b) Recommendation of an oral re-examination on topics to be specified by the faculty well in advance of the re-examination. These topics will be arranged on an individual basis. The oral re-examination will be less than one hour in length, must occur before the end of the same spring quarter, and will be attended by at least three faculty members. Following the re-examination, these three faculty members will make a recommendation that will be reviewed at the next faculty meeting, at which time a final decision regarding continuation in the doctoral program will be made.
 - (c) A recommendation to Graduate Studies for a change in degree objective to Master of Science, or for disqualification from the program.
- (vii) The outcome of the oral presentation and review process will be announced in writing to each student no later than two weeks following the examination. Unless special permission is granted by the faculty, this outcome is final and the exam cannot be taken again the following year. A student has the opportunity to appeal this decision to the program and then to the Dean of Graduate Studies.

Students who have passed the program Ph.D. preliminary evaluation and decide to stop with a M.S. degree must file a Change of Degree Objective Form, approved by the Graduate Adviser and Graduate Studies, and ensure that they have met degree requirements for the M.S. degree. Students who entered UC Davis without a degree in Chemical Engineering or a closely related field, may not have completed all but one of the Core Courses offered in fall and winter quarters of their first year. These students may be offered the preliminary examination within the first 3 weeks of winter quarter of their second year.

6. Qualifying Examination (QE)

After passing the Ph.D. preliminary evaluation the student should immediately begin preparing for the qualifying examination administered by a faculty committee approved by the Dean of Graduate Studies. It is designed to test the student's preparedness in the major and minor areas to pursue Ph.D. research. Students entering with a Bachelor's Degree in Chemical Engineering (or a closely related field) must take the qualifying examination before the end of the winter quarter of the second year. Students entering with a Master of Science Degree in Chemical Engineering (or closely related field) must take the qualifying examination before the end of the fall quarter of the second year. Satisfactory progress (and thus continued funding) will be contingent upon students taking the qualifying exam in their assigned quarter. The qualifying examination is required at the time that a student has completed all (or is taking the final one or two) courses listed on the Program of Study and the Program of Study has been approved by the Reading Committee (Dissertation Committee) and the Graduate

Adviser. A GPA of 3.5 in graduate course work is expected (3.25 minimum) in order to take the qualifying examination.

Early in the summer of the first year the student should meet with his/her Dissertation Committee to discuss the proposed research and review the Program of Study. If any changes are made to the student's program, the student must submit a revised Program of Study with all signatures.

Students must complete an Application for Qualifying Examination (see <http://gradstudies.ucdavis.edu/forms/index.html>) and submit this form at least three weeks before the anticipated exam date. This form must be approved by Graduate Studies and the Qualifying Examination Committee formally constituted before the exam can take place. A student must not take the qualifying examination prior to receipt of the Notice of Admission to the Qualifying Examination from Graduate Studies. It takes approximately two weeks for Graduate Studies to process the application.

The Qualifying Examination Committee ordinarily consists of five members with at least one member being appointed from outside the Department of Chemical Engineering and Materials Science; the chairperson of the committee must be a faculty member in the program. The chairperson of the Dissertation Committee may not be a member of the Qualifying Examination Committee. Students must be registered for the quarter in which they take the qualifying examination. Once a time and a date have been agreed upon by the student and the committee members (the student coordinates the scheduling), the application will be processed and a conference room will be reserved.

- (i) At least one week prior to the qualifying examination, the student must submit to the Qualifying Examination Committee a dissertation proposal (approved by the Major Professor). The dissertation proposal is typically 10 – 15 pages double spaced and of format similar to a NSF or NIH grant proposal containing the following sections: Objectives (Specific Aims), Background, Proposed Work, Schedule of Work, and References.
- (ii) The student, in consultation with the Guidance Committee, will specify several areas for examination. The qualifying examination will be limited to these areas and a critical evaluation of a dissertation proposal. Successful completion of the program Ph.D. preliminary evaluation and an approved Ph.D. Program of Study will be considered by the Qualifying Examination Committee to be successful completion of the comprehensive part of the qualifying examination. The format of the qualifying examination will consist of a 20 to 30 minute presentation by the student in which the qualifying exam committee may ask proposal related questions followed by general questions in the exam areas, and feedback by the Committee.
- (iii) A committee, having reached a unanimous decision, shall inform the student and the student's graduate adviser of its decision as "Pass"(no conditions will be appended to this decision), "Not Pass" (the Chair of the qualifying exam committee will notify the student within a week whether he/she 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" preferably within 3 months) or "Fail". After a second examination, a vote of "Not Pass" will not be given; only "Pass" or "Fail" is recognized. Only one retake of the qualifying examination is allowed.
- (iv) Upon successful completion of the qualifying examination, each student must file an official application for Advancement to Candidacy. When the form has been completed by the student and signed by the Graduate Program Adviser and Major Professor, the student pays a candidacy fee at the Cashier's Office in Dutton Hall and submits the form through the Graduate Program Coordinator to Graduate Studies for approval.

7. The Ph.D. Dissertation

A dissertation on a subject chosen by the candidate and Major Professor, bearing on the principal subject of study, and of such character as to show ability to pursue independent investigation, must be approved by the

Guidance and Reading Committee before the degree will be recommended. The doctoral dissertation must be an original and substantial contribution to knowledge in the student's major field. It must demonstrate the ability to carry out a program of advanced and independent research and to report the results in accordance with standards observed in recognized peer reviewed scientific journals.

8. Exit Seminar

The program requires that each student present an exit seminar of his/her research to the departmental faculty and students before filing the dissertation with Graduate Studies. Notification of the seminar to faculty and students must be given at least two weeks in advance; this is arranged through the Graduate Program Coordinator. At least two of the three Guidance and Reading Committee members must be in attendance.

9. Filing the Dissertation

Filing of a dissertation with Graduate Studies is the last requirement to be satisfied by candidates for advanced degrees. The deadlines and information for completing this requirement are listed for each quarter on the Graduate Studies Web Site http://gradstudies.ucdavis.edu/students/degree_candidates.html . A candidate must be a regularly registered student or on Filing Fee status at the time of filing a dissertation, with the exception of the period between the end of the spring quarter and the beginning of the fall quarter.

10. Commencement

Graduate Studies, together with the Graduate Council and the Graduate Student Association hosts graduate commencement, always colorful and festive. The ceremony is held the evening of the last Thursday of spring quarter at the University ARC Pavillion. A reception is held immediately following the ceremony for the degree recipients, candidates, faculty, family, and friends.

If you receive your graduate degree in September, December, March or in June, you are eligible and welcome to participate in the commencement. If you are close to completion and will not be in Davis the following June, you are also eligible and welcome to participate. Graduate Studies will send information about commencement in February.

Any student who will receive a degree in March, June or September, or who expects to receive a degree in December, is eligible and welcome to participate in June commencement ceremony.

11. Summary of Milestones for Ph.D. in Chemical Engineering

The milestones described below are designed to help students finish their degree requirements for the Ph.D. within four years. This is the framework that will be considered when making evaluations for satisfactory progress.

First Year

- (i) If you are a citizen or permanent resident of the United States, but not a California resident, **you must prove your intent to make California your home by severing your residential ties with your former state of residence and establishing those ties with California shortly after arrival.** Please review the legal ties need to become a California Resident at <http://registrar.ucdavis.edu/html/slr.html#intent> (September).
- (ii) Complete course work for the major, start course work for the minor (fall, winter, spring).
- (iii) Submit to the Graduate Program Coordinator a list with your first, second, and third choices for Major Professor and dissertation topic by the third Friday in November.

- (iv) Set up Guidance and Reading Committee and initiate research on dissertation proposal (January).
- (v) Prepare Program of Study and submit it to the Graduate Adviser (March).
- (vi) Take Ph.D. Preliminary Evaluation (April).
- (vii) Continue research on dissertation topic (winter, spring, summer).
- (viii) Citizen or permanent resident of the United States, but not California resident, have you submitted your [Statement of Legal Residence Form](#)?(July).

Second Year

- (i) Changes (if any) to the Program of Study to the Graduate Program Coordinator (Sept 15).
- (ii) Complete course work for the minor [fall and winter or fall (holders of M.S. degrees)].
- (iii) Apply to take Qualifying Exam.
- (iv) Complete research proposal for Qualifying Examination.
- (v) Take Ph.D. Qualifying Examination [winter or fall (holders of M.S. degrees)].
- (vi) Meet with Guidance and Reading Committee for follow-up discussion of Qualifying Examination.
- (vii) Dissertation research (fall, winter, spring, summer).

Third Year

- (i) Dissertation research (fall, winter, spring, summer).
- (ii) Optional course work for breadth.
- (iii) Meet with Guidance and Reading Committee to consolidate dissertation objectives and discuss progress toward degree.

Fourth Year

- (i) Complete dissertation research (fall, winter, spring).
- (ii) Present exit seminar (spring).
- (iii) File dissertation (spring, fall).

12. Responsibilities of Major Professors

- (i) It is the responsibility of the Major Professor to honor the financial offer made to the FYGS. The Department will provide the details of the financial offer to the major professor; faculty should not accept students on unfunded projects. During a hiatus in extramural support, the major professor should consult with the Department Chair for a possible bridge loan or TA/AI funding.
- (ii) The Major Professor must provide graduate students with specific requirements for achieving their desired degree objective. This includes advice on courses for the program of study, a method of evaluation of student progress in research, and the faculty member's expectations for time spent on research for a given number of research units. In essence, the student and the Major Professor should collaboratively "define success" for the project chosen. The Major Professor, when assigning an S/U grade for ECH 299 credits, must fill out and sign the accompanying departmental quarterly progress reports in fall/winter and graduate studies annual progress report in spring for each student. Reasons for any unsatisfactory performance on dissertation research or recommended course work should be discussed with the student and stated clearly to the student in the progress reports or a separate written evaluation.

- (iii) The Major Professor and graduate student should arrive at and maintain a mutually agreeable schedule of advising conferences, including an annual review on the progress, direction, and duration of the project. The result of this annual review should take the form of a written report to the student (placed in the student's file) summarizing the review. The annual progress report can be used for this purpose.
- (iv) It is the responsibility of the Major Professor to ensure that the objectives regarding time-to-degree, outlined in this handbook, are attainable. This shall include, but not be limited to, meeting with the student and the dissertation committee after the student's qualifying examination to discuss points raised by the Qualifying Examination Committee regarding the direction of the research, and meeting with the student and the Dissertation Committee after the student has been in residence for three years to discuss the progress of research and what must be accomplished to complete the degree.
- (v) It is the responsibility of the Major Professor to inform the graduate student if extramural funding for the student's research project is in jeopardy. At least six months advance notice should be given to the Department Chair and the student so that other funding alternatives can be explored.

13. Responsibilities of Doctoral Students

- (i) The goal of the program is that each student should have the opportunity to complete all degree requirements (from course work to exit seminar) within twelve academic quarters (not including summers) if they enter the graduate program at Davis with a B.S. Degree in Chemical Engineering, or nine academic quarters if they enter with an M.S. Degree in Chemical Engineering. It is noted that individual time-to-degree goals may vary due to the very nature of advanced research and this framework should serve as a guideline under which the Major Professor and the student can work together toward timely completion of the dissertation requirements.
- (ii) For *all* students, *satisfactory progress* consists of:
 - a. taking required courses in the specified sequence (including ECM 290);
 - b. taking and passing the Ph.D. preliminary exam during the first year of residency;
 - c. obtaining satisfactory grades in 290C and 299 (also indicated by excellent, good, or satisfactory on quarterly and annual student progress report forms);
 - d. taking and passing the qualifying exam by the end of the spring quarter of the second academic year;
 - e. maintaining an overall GPA > 3.25 (the Department expects Ph.D. students to maintain an overall GPA >3.5);
 - f. completing all degree requirements within twelve academic quarters beyond the B.S. or nine academic quarters beyond the M.S. If a Ph.D. project extends beyond twelve quarters, the student may still be considered as making satisfactory progress, if so determined by the Major Professor and the Dissertation Committee.
- (iii) All students must sign the quarterly and annual progress reports given to them by their Major Professors and submit to the Graduate Coordinator. These reports along with the course grades are used to facilitate communication between the student, Major Professor, and the adviser regarding advancement toward degree objectives.
- (iv) Graduate students are encouraged to present their research routinely at research group meetings.

14. Support

The departmental goal for doctoral student funding for those making satisfactory progress is to provide a competitive stipend for 12 months. The financial offer made to the FYGS has precedence and can

be achieved through a combination of GSR, TA/AI (Teaching Assistant/Associate-In), Fellowship, and PGR (Post Graduate Researcher) awards. However, it is the responsibility of the Major Professor, not the Department, to make all possible efforts to ensure that the commitment to the graduate student is met. All graduate students (U.S. citizens and permanent residents only) are required to file the Financial Aid for Students Application (FAFSA) by March 2 to receive priority consideration for fellowships, block grants, GAANN Fellowships, loans, and Work-Study funds that pay Graduate Student Researcher salaries. The FAFSA is available online at: <http://www.fafsa.ed.gov>. The UC Davis School Code is 001313.

Stipends to continuing students will be made by the Department on the basis of academic and research achievements at Davis, performance of assigned duties, promise of future productivity, and the demonstration of satisfactory progress as described above. The stipend is increased, by assigning the student to a higher step, after the student passes the Ph.D. qualifying examination. The principal source of these stipends will always be extramural funding. Obtaining such support for his or her graduate students must be the primary objective of each faculty member's research activities.

Students must make satisfactory progress toward their degree objectives to be eligible for continued support. Doctoral students in residence for more than twelve academic quarters will not be guaranteed TA/AI positions in the Department, Nonresident Tuition Fellowships (NRTF), and/or Department fellowships; preference will be given to those students in residence for less than twelve academic quarters. For those students who may be considered making satisfactory progress beyond the fourth year, support funds should come from extramural sources.

There are *nine* categories of support. These are administered by either the University (e.g. Graduate Studies), the Department, or individual faculty members.

Individual Faculty

Graduate Student Researcher and *Post-Graduate Researcher* positions are funded through non-departmental sources, usually extramural grants and contracts.

University

University Fellowships (or Block Grant Fellowships) and *Centrally Administered Fellowships* for continuing students are available on a competitive basis through the Graduate Division or campus research units/centers. *Nonresident Tuition Fellowships* are available to incoming students and, if available, for continuing students on a competitive basis. The application deadline for these is usually January 15.

Department

Departmental Fellowships are derived from extramural gifts or training grants such as GAANN awarded to the Department and are mainly used for recruiting new students. *Teaching Assistantships (TAs)*, *Associate-Ins (AIs)*, and *Readerships* are available. These are generally assigned on a quarter-to-quarter basis from funds allocated to the Department by the University.

If a graduate student is not meeting the Major Professor's expectations for timely progress toward achieving an advanced degree as reflected in poor progress report(s) and/or unsatisfactory grade(s) in ECH 299, the Major Professor has the right to terminate extramural funding. However, the graduate student must be informed in writing at least three months in advance that this is being considered, and the student must be informed of the conditions that must be met to avoid termination of funding. Circumstances may arise that require funding to be terminated with less than three months notice, e.g., change of Major Professor, request for PELP, or gross neglect of graduate studies. If less than three months notice is to be given, the Chair of the Graduate Affairs Committee and the student's Graduate Adviser must be apprised of this action by the Major Professor before such action is taken.

15. Changing Major Professors

The Department recognizes that there may be valid reasons for a graduate student to want to change his/her Major Professor, e.g., lack of funding, personality conflicts, change in the direction of dissertation project, or resignation of the Major Professor from the faculty. If a student should choose to request a change in Major Professor, the Department will make every effort to be helpful and to ensure that this is not a traumatic experience for the student. **However, a change in Major Professor may result in loss of extramural support for the student since the Department cannot always assure the student that a funded project will be available when the change in Major Professor is made. Furthermore, such a change may increase the time required to completion of the degree.**

The following procedures should be followed when a graduate student wants to change his/her Major Professor:

- (i) The graduate student must inform his/her Graduate Adviser in writing and give reasons for the requested change. If the Graduate Adviser is the student's research adviser, then the Chair of the Graduate Affairs Committee will assume this role.
- (ii) The Graduate Adviser must meet with the student within one week of receipt of the written notice to discuss options available to the student and the possible consequences if the request is acted on, e.g., possible change in student stipend, time-to-degree, lab space, office space, etc. The Graduate Adviser will provide the student with a written summary of these discussions, and the student must acknowledge in writing that he/she understands the implications that may result from a change in major professor. The student has one week following the meeting with the Graduate Adviser to decide whether to proceed with a change in Major Professor, or request mediation to resolve any conflict with the Major Professor. All discussions between the student and the Graduate Adviser shall be confidential to this point.
- (iii) If, after the Graduate Adviser has explored all the options available and discussed them with the student, the student still wants to proceed with the request, the Graduate Adviser will inform the student's current Major Professor and the Chair of the Graduate Affairs Committee, and then help the student identify a new Major Professor. Typically, this should happen no later than two weeks after the Graduate Adviser was first notified by the student.
- (iv) Once a new Major Professor is identified, the student must be informed in writing what the dissertation topic will be, the status of extramural funding and the expected time-to-degree.
- (v) The former Major Professor must be informed of the dissertation topic so that any questions regarding intellectual property rights can be addressed before the student begins his/her new research.
- (vi) Concerns regarding intellectual property rights and obligations to funding agencies should be resolved by the faculty members involved before the student begins work on his/her new dissertation topic. If the faculty members cannot resolve these matters, the Department Chair will review the facts and recommend further action. This may involve the appointment of an ad hoc committee of three objective third-party members, including two possibly from other departments and one from the office of legal counsel on campus. Every effort should be made to resolve these issues expeditiously so that the student can proceed with his/her dissertation.
- (vii) Once the new Major Professor has been assigned to the student (typically no longer than four weeks after the initial request for a change in Major Professor was made), all responsibility for the student's funding, laboratory space, office space, and advising will be transferred to the new Major Professor. The graduate student is responsible for completing the orderly transition which may include return to the former adviser of all lab notebooks, research records and reports including computer programs, experimental data, equipment, biological materials, and lab supplies associated with the former research project. The graduate student will be allowed to have access to data and other pertinent information in the lab notebooks and/or other research records if required for dissertation preparation

or for publication purposes. Upon completion of the transition tasks, the former Major Professor should transmit a signed note to the Graduate Adviser to notify him/her of the satisfactory completion of the transition.

- (viii) The above procedures may be followed when a faculty member resigns from the Department or is unable to carry out the necessary advising responsibilities because of a serious illness, or death. If the major professor should resign and assume a position at another university, the student may have the opportunity to finish his/her research at this other university.

16. Probation and Disqualification

Graduate students are subject to probation if their progress is judged unsatisfactory in their annual progress report, quarterly 299 grade or quarterly student progress report (poor rating), or if in any quarter, their cumulative grade point average is below 3.0, or if they accumulate more than 8 units of incomplete (I) or unsatisfactory (U) grades. The Dean of Graduate Studies will inform the student he/she is on probation and what must be done to return to regular status. A student is subject to disqualification if he/she cannot meet the requirements to return to regular status. Students cannot be advanced to candidacy if they are on probation. Disqualification of graduate students is at the discretion of the Dean of Graduate Studies as discussed in the [Graduate Student Guide](#).

C. MASTER OF SCIENCE DEGREE IN CHEMICAL ENGINEERING

The Master of Science degree program allows students to take advanced course work and develop the skills necessary to complete an independent research project. For the Master of Science degree, students must be in residence for a minimum of three quarters. A student is in academic residence when enrolled in at least 4 units of approved upper division or graduate courses, including research. However, students must enroll in a minimum of 12 units to be considered in full-time status. Two regular six-week summer sessions may be counted as the equivalent of one quarter. Arrangements can be made to satisfy part of a residence requirement by study on another campus of the University of California.

1. Course Work Requirements

A Master of Science degree may be awarded upon completion of either one of two basic plans: Plan I (thesis plan) and Plan II (non-thesis plan).

Plan I. For the Master of Science in Chemical Engineering, Plan I, a total of 36 units of course work and a thesis are required. Of these 36 units, 26 must be in upper-division and graduate courses, exclusive of seminar and research units. Twenty of the 26 units will come from the five required core graduate chemical engineering courses listed in Section IB-2. These courses must be taken for a letter grade. The remaining six units must be earned in upper division or graduate level courses (100 level or above), exclusive of seminar and research units. See Section ID for a discussion of transfer credit from other universities.

Although course work for the Master of Science degree can be completed in three quarters of full-time study, at least one calendar year to six quarters of full-time study is usually required to complete the M.S. thesis.

Plan II. Plan II requires 38 units of course work (exclusive of research and seminar courses), and passing the program Ph.D. preliminary evaluation. The course work requirements for the Plan II, M.S. degree are the same as those for the Ph.D. degree (see Section IB-2). See Section I-D for a discussion of transfer credit from other universities.

Coursework Guidelines for Plan I and Plan II

All registered graduate students must enroll in ECM 290, Seminar, each quarter during their graduate study; a passing grade will be contingent upon satisfactory attendance at the seminars. After fall quarter of the first year,

students should also enroll in 299, Graduate Research and 290C, Graduate Research Group Conference. The number of hours a student is expected to devote to 299 courses is at least three hours of research per week per unit of 299. Course 299 may also be used to prepare for the Ph.D. preliminary evaluation or qualifying examination. 290C is a 1-unit conference course designed to allow student groups to discuss their research progress with their major professor and research group on a regular basis.

The goal of the Program is that each student should have the opportunity to complete all degree requirements (course work and thesis defense) within six academic quarters (not including summers) if they enter the graduate program at Davis with a B.S. degree in Chemical Engineering.

Only courses in the 100 and 200 series in which the student receives grades of "A", "B", "C" or "S" may be counted in satisfaction of the requirements for the M.S. degree. A course in which a student receives a "D+" or lower cannot be used to satisfy the unit requirement for the M.S. degree; however, it will count in determining the grade point average. Courses in the 300-400 series may be accepted if they have been approved by the Graduate Council.

Students working toward a Master of Science degree are permitted to include one course in their program taken on a satisfactory/unsatisfactory basis (other than 290C, 299, or 390 courses which are always graded on a S/U basis). This course cannot be one of the required five "core" courses for the Chemical Engineering major. For a graduate course, if a grade of "B-" or higher is received, an "S" for satisfactory is shown on the student's record. For an undergraduate course an "S" is shown on the student's record if the grade is "C-" or higher. Courses in addition to those needed to satisfy degree or program requirements may be taken on a S/U grading basis by either master's or doctoral students. However, in accordance with Graduate Council policy, only one course per quarter may be taken on this basis, and it must be exploratory in nature. Any student may, with the consent of the appropriate Graduate Adviser and the Dean of Graduate Studies, repeat a course in which the student received a grade of C, D, F or unsatisfactory up to a maximum of 9 units. In such repeated courses, only the most recently received grade and corresponding grade points shall be used in calculating a student's grade-point average, but all units attempted and grades received shall remain part of the student's permanent record. Any repeated course, except for those only offered on a satisfactory/unsatisfactory basis, must be taken for a letter grade (A, B, C, D, F). Graduate credit is not allowed for a course in which a grade below "C" is received. Grades received in lower division (numbered 1 to 99) courses are not counted in determining grade-point averages. However, all upper-division 100 series course grades are included, even if the course is one normally required for a bachelor's degree and is being taken to complete background requirements.

2. Selection of a Major Professor (Research Adviser), Plan I

The same guidelines as described in Sections I-B-3 and I-B-15 for initial selection and changing Major Professors are followed for M.S. students, although the choice of research projects/major professors will be different due to the more limited scope of the M.S. research project and no funding guaranteed.

3. Guidance and Reading Committee Selection, Plan I

The Major Professor serves as the chairperson of this three-member committee. At least one of the Guidance and Reading Committee members must be a member of the Chemical Engineering and Materials Science Graduate Program. The committee membership is proposed by the student, in consultation with the Major Professor; this information is included in the Application for Advancement to Candidacy. The committee members may come from any department in the College of Engineering or outside of the College if appropriate.

4. Advancement to Candidacy, Plan I

Students must file an Application for Advancement to Candidacy with Graduate Studies after completion of at least one-half of the degree requirements and at least one quarter before completion of all requirements.

Application for advancement to candidacy may be made only if the GPA average is close enough to 3.0 so that if the student is currently enrolled in course work, the successful completion will give the student the required GPA of 3.0. Even if advanced, the student must attain a minimum grade point average of 3.0 before the degree is awarded.

5. The Master of Science Thesis, Plan I

The students are expected to begin work on their research immediately after they have chosen a topic and been assigned a Major Professor. New students should begin consultations with individual faculty members during their first quarter to discuss research topics. It is critical that the M.S. student complete course work and research in a timely manner to finish within six academic quarters.

6. Exit Seminar, Plan I

The department requires that each graduate student make a presentation of their research to the departmental faculty and students before filing the thesis with Graduate Studies. Notification of the presentation must be given to faculty and students at least one week in advance; this is arranged through the Graduate Program Coordinator. At least two of the three Guidance and Reading Committee members must be in attendance.

7. Filing the Thesis, Plan I

Filing of a thesis with Graduate Studies is the last requirement satisfied by candidates for advanced degrees. The deadlines and information for completing this requirement are listed for each quarter on the Graduate Studies Web Site <http://gradstudies.ucdavis.edu/students/index.html>. A candidate must be a registered student in good standing or on filing fee status at the time of filing a thesis, or taking a comprehensive examination with the exception of the period between the end of the spring quarter and the beginning of the fall quarter.

8. Commencement

This information is described in Sections I-B-10.

9. Summary of Milestones for the M.S. in Chemical Engineering (Plan I)

First Year

- (i) If you are a citizen or permanent resident of the United States, but not a California resident, **you must prove your intent to make California your home by severing your residential ties with your former state of residence and establishing those ties with California shortly after arrival.** Please review the legal ties need to become a California Resident at <http://registrar.ucdavis.edu/html/slr.html#intent> (September).
- (ii) Complete required course work (fall, winter, spring).
- (iii) Submit to the Graduate Program Coordinator a list with their first, second, and third choices for Major Professor and thesis topic by the third Friday in November
- (iv) Set up Guidance and Reading Committee (January).
- (v) Initiate research on thesis (winter, spring, summer).
- (vi) Citizen or permanent resident of the United States, but not California resident, have you submitted your [Statement of Legal Residence Form](#)?(July).

Second Year

- (i) Submit Advancement to Candidacy Application (fall).
- (ii) Complete research (fall, winter, spring).
- (iii) Thesis presentation (spring).
- (iv) File thesis with Graduate Division (spring).

10. Responsibilities of the Major Professor (Thesis Adviser)

The responsibilities of the Major Professor are the same for M.S. students as for Ph.D. students (see section I-B-12).

11. Responsibilities of the Student (Plan I and Plan II)

- (i) For *all* students, *satisfactory progress* consists of:
 - a. Taking required courses in the specified sequence and “satisfactory” performance in ECM 290, 290C, and 299 (also indicated by good, excellent, or satisfactory on quarterly student progress report forms)..
 - b. Maintaining an overall GPA > 3.25 in all upper division and graduate courses taken during residence as a graduate student at UC Davis. Upper division courses needed to complete background requirements (for students entering without a Chemical Engineering degree) are included in the GPA calculation.
 - c. Completing all degree requirements within six academic quarters beyond the B.S. (If a M.S. project extends beyond six quarters, the student may still be considered as making satisfactory progress, if so determined by the major professor and the Guidance and Reading Committee.)
- (ii) All students must sign the quarterly and annual progress reports given to them by their Major Professors and submit to the Graduate Coordinator. These reports along with the course grades are used to facilitate communication between the student, Major Professor, and the adviser regarding advancement toward degree objectives.

12. Support

The Department is unable to guarantee financial support for students pursuing a M.S. degree. However, depending on individual interests and needs, some support may be available through a Graduate Student Researcher, Teaching Assistantship, or a Fellowship. M.S. students in residence for more than six academic quarters will not be eligible for TA/AI positions in the Department, NRTFs and/or Department Fellowships. If the admission letter indicates guaranteed financial support, the financial offer is subject to making satisfactory progress toward the M.S. degree and working with a Major Professor on a funded project.

D. TRANSFER OF CREDIT FROM OTHER INSTITUTIONS

Ordinarily, students entering the graduate program at UC Davis with a Bachelor’s degree will perform all work for the graduate degree in residence on the Davis Campus. However, it is recognized that some entering students have already completed advanced and graduate coursework beyond the requirements for their Bachelor’s degrees. In these cases, advanced and graduate work taken elsewhere may be credited toward the degree at UC Davis as specified below.

Doctoral Program

Course work taken at other academic institutions is not transferred to a student's UC Davis graduate record, although that course work may be applied to the student's Program of Study. Under normal circumstances, the department requires the doctoral student to complete a minimum of 30 units of course work listed on the Program of Study at UC Davis. The limit for such transfer credit is 8 units from another institution with permission of the student's Graduate Adviser. However, entering students with M.S. degrees or extensive completion of advanced and graduate course work, may transfer an additional 6 units from another institution with permission of the Graduate Adviser and the Chair of the Graduate Affairs Committee. Students transferring to UC Davis' Chemical Engineering Ph.D. Program from a Ph.D. Program of high standard who have performed coursework indicating **superior** scholarship may transfer as many as 19 units with permission of the Graduate Adviser and the Chair of the Graduate Affairs Committee.

Transferred units will *not* be accepted if they were used in the satisfaction of the requirements of a bachelor degree or if they constitute units from a core undergraduate chemical engineering course. In addition, a major consideration in transfer of units will be course content and mastery of the material. Therefore, the student should prepare a dossier of coursework and demonstrate understanding of the material (for example in discussion with a faculty currently teaching the course at UC Davis). If the content of the transferred course is similar to a currently offered Chemical Engineering Core Course, as verified by the current instructor, the student may be excused from taking the core course and list the transferred course on the Program of Study.

Master's Program

A student transferring to UC Davis during a master's program may be allowed a maximum of 6 quarter units of credit for appropriate courses taken elsewhere. Credit so allowed cannot be used to reduce the minimum number of graduate course units (200 series) required for the M.S. degree. A student from another campus of the University of California may be allowed credit for up to 6 units required for the M.S. degree for courses taken at the other campus.

An undergraduate course required for the B.S. degree cannot be used to fulfill the M.S. course work requirements. However, upper division undergraduate courses which are **not** used to fulfill any B.S. requirements may be applied to the M.S. degree requirements.

There are additional Graduate Studies transfer credit regulations. These include:

- a. Units of work taken other than at the University of California may not be used to reduce the minimum residence requirements or the 12-unit minimum requirement in the 200-series courses taken at the University.
- b. Students who have been accepted into a double major program may transfer a total of 12 units overall between academic programs with the approval of the Graduate Adviser and the Dean of Graduate Studies.
- c. Requests for transfer credit should be made before advancement to candidacy. The Graduate Adviser should make a request to the Dean of Graduate Studies specifying the units and courses involved.
- d. Units to be so counted must have been taken at an accredited institution.

E. RESIDENCE AND REGISTRATION REQUIREMENTS

Registration Policies

Upon matriculation in a particular program, students are expected to register continuously until completion of the degree. However, leaves are readily granted for reasons such as illness, family problems, and uncertainty

regarding educational goals. If you do not register, and fail to have a leave approved, you are not guaranteed readmission at a later date.

Enrollment Policies

Students are expected to enroll each quarter for an academically appropriate number of units. A minimum of 12 units of upper division or graduate courses per quarter are required to be considered a full-time student. Units of 299 may be assigned for students carrying out supervised research or preparing for the Ph.D. preliminary evaluation or the qualifying examination, and count toward the minimum 12 unit requirement.

F. FILING FEE STATUS

Doctoral and master's candidates will normally file a final approved copy of their dissertation or thesis with Graduate Studies during their final quarter of residence on campus and must be registered at this time. Students who have completed all degree requirements, including all laboratory work and the preparation of a draft of their dissertation/thesis, and who may not require an additional quarter in residence to prepare the final dissertation/thesis manuscript, are eligible to pay a reduced fee (for the filing of a dissertation/thesis or a formal final examination) rather than registering as a regular student. See http://www.chms.ucdavis.edu/students/graduates/academic_forms/ for the Filing Fee forms.

To prevent abuses of the Filing Fee procedures, definite limitations on eligibility have been established. Students in non-registered status, Filing Fee, will be allowed **one quarter** of academic employment without request for exception. Exceptions beyond this one-quarter period rarely will be granted. Students are also in non-registered status when on [PELP](#) (Planned Education Leave Program), but students may not hold an academic appointment. Students are ineligible for PELP or Filing Fee if they are using University facilities to perform their research. Doctoral students must have completed **all** of their research to be eligible for filing fee status. In general, these limitations are based upon the principle that students using University facilities or faculty time, other than the time involved in the final reading of a dissertation or thesis, are not eligible to employ the filing fee procedure. Students paying only the filing fee are not registered students eligible for the privileges accorded regularly enrolled students. In particular, students on Filing Fee status may not:

1. Use any University facilities (e.g. Health Center, Housing, Library, [ARC](#) (Recreational and Activities Center), laboratories, desk space).
However, you may purchase a library card, if you wish. During a non-registered quarter you are responsible for purchasing your own health insurance. Contact the [Student Health and Wellness Center](#);
2. Make demands upon faculty time other than the time involved in the final reading of the thesis/dissertation;
3. Receive a fellowship or financial aid;
4. Take course work of any kind;
5. Conduct your dissertation/thesis research.

Students who plan to make use of library or other facilities or to take courses must register as regular students. Students who plan to be away from the campus but in an instructional relationship with faculty members must register as regular students (a student outside the State of California may be eligible to register for reduced fees). Students planning to take qualifying examinations for the Ph.D. degree must register as regular students. **If you have already enrolled in courses, including 299 research units, for the quarter Filing Fee will begin, it is your responsibility to drop those courses and withdraw from the quarter by submitting a Petition to Withdraw to the Office of Registrar prior to the first day of the quarter for which you wish to go on Filing Fee. Failure to do so will result in a financial obligation.**

G. PELP/FILING FEE & THE STUDENT HEALTH INSURANCE PROGRAM (SHIP)

The [Student Health & Wellness Center](#) provides the Student Health Insurance Program (SHIP) to all students as part of their student fees (in-state or out-of-state) payment. Registered students may opt out of SHIP if they have access to an independent health insurance plan. Since students on PELP or Filing Fee do not pay fees and tuition, they are not automatically entitled to SHIP and are eligible to purchase SHIP for only one quarter of PELP or Filing Fee status.

Students on PELP or Filing Fee who intend to purchase SHIP for their one quarter of eligibility are required to bring their approved PELP or Filing Fee form to the Health Center as notification of the change in registration status within five days of the beginning of the quarter in which the change is to be effective. Students on PELP or Filing Fee who do not wish to continue their SHIP must file a registration status change before the start of the quarter in order to receive a full refund of the SHIP fee. If the change of registration status is filed on or after the first day of the quarter, the SHIP fee will not be refunded.

To review the Student Health & Wellness Center full policy on Filing Fee and PELP, go to their web sites at, respectfully:<http://shcs.ucdavis.edu/insurance/ucship/elig-filing.html> and <http://shcs.ucdavis.edu/insurance/ucship/elig-pelp.html>

H. NONRESIDENT TUITION FEE REDUCTION

Nonresident Tuition (NRT) for doctoral students is eliminated upon advancement to candidacy. To be eligible for the reduced NRT in a given quarter, a Ph.D. candidate must have advance to candidacy prior to the first day of that quarter. The reduced NRT holds for three academic years (36 consecutive months) after advancement to candidacy, including time spent on Planned Educational Leave Program (PELP). Students who have not completed their doctorate after the three-year period, and who remain enrolled students, will again be assessed full NRT at the rate in effect at that time.

I. REGISTRATION

[SISWEB](#) is the UC Davis Web-based registration system. Registered students can use SISWEB to enroll in classes, adjust their class schedule, view and print their class schedule, print their unofficial academic record, change their address, view their account, view their financial aid status, and much more. To access the SISWEB system you will need your UC Davis Login ID and corresponding password, as well as your student identification number and PAC (Personal Access Code). Information on the campus computing account is available from [Information and Educational Technology](#), which manages the accounts.

Students wishing to add courses which require instructor approval (290C, 299 and 390) must obtain the appropriate course reference number (CRN) from their major professor before accessing SISWEB.

ALWAYS REMEMBER: Students must receive instructor approval before changing units. Failure to secure instructor approval before registering for a variable-unit course or changing units may result in disciplinary action, academic penalty, or both.

Full time students must register in at least 12 units each quarter during Pass 1 of registration to avoid problems with financial assistance and payment of fees. The last day to drop a class is the 10th or the 20th day of instruction. The 10 day drop courses are designated by the Δ in the "[Class Schedule and Registration Guide](#)". The last day to add a class is the 12th day of instruction. The last day to file for a course to be taken on a S/U the 25th day of instruction.

J. IMPORTANT DEADLINES

There are many important dates/deadlines that you need to be aware of, such as the last day to pay fees, add/drop classes, file petitions, file theses. These deadlines are listed in [Class Schedule and Registration Guide](#) (quarterly). Ultimate responsibility lies with the student to be aware of impending deadlines.

II. ADMINISTRATIVE INFORMATION

A. FACILITIES

1. Office Services/Supplies

Office services associated with your research and project work should be arranged through your major professor and must be paid through a research grant. Major Professors should be notified when a student requires office supplies for any research projects.

2. Copy Machines

There are copiers available for student use in 3151 Bainer Hall. This machine will only work with a copy card. If your copying is related to research, the card can be obtained from your major professor. If the copying is related to teaching assistant duties, then the departmental copy card should be checked out from the Department's Business Office.

Officers of student societies (GSA) needing to use a copy machine for official business may check out the Department's Business Office copy card.

3. Telephones

Inter-campus phone calls can be made from phones located near 3126 Bainer Hall, main lobby in Bainer Hall and under the staircase in the main lobby in Kemper Hall. Local calls can be made from a student's office, long distance calls require an access code which is provided by the major professor. Students may not use staff phones.

4. Fax Machine

The Department's fax machine is located in 3151 Bainer Hall; the fax machine number is (530)752-1031. Use of this fax for off-campus calls requires an authorization code which should be obtained from your major professor. Incoming faxes will be placed in the recipient's mail box.

5 Graduate Student Mailboxes

Each Chemical Engineering graduate student will be assigned a mailbox in 3151 Bainer Hall. Be sure to check your mailbox for messages, etc. Also, your e-mail which is the Department's preferred method of sending notices. The door to the mail room will remain locked after business hours and on weekends; however, a key code will be issued to each graduate student.

6. Keys

Keys and key codes are given to each graduate student for entrance to research laboratories and the graduate mail room. Keys for Bainer Hall, and Kemper Hall, are issued by Department staff in Bainer Hall. Keys must be returned before exiting the program (after you have completed your degree or go on an extended leave).

7. Procedures for Purchasing Supplies/Materials

If you are working on a research project funded through a grant or contract, purchase of materials may be allowed subject to the approval of your major professor. The following steps must be taken to purchase any item.

- i. To purchase supplies/materials use the [Online Purchasing System \(OPS\)](#). If you need access to OPS, please email coe-purch@ucdavis.edu. Be sure to provide catalog numbers, address, and telephone numbers. Carefully review the form for completeness before submitting. You can attach quotes and MSDS in OPS when you place the order.
- ii. Please allow two days for Request for Purchase Orders to be processed.
- iii. Allow at least three weeks for the processing and delivery of equipment orders more than \$5000 as these orders must be placed by the Campus Purchasing Office.
- iv. If an order is needed immediately due to an emergency, see staff in the Business Office for special procedures.
- v. Never buy supplies, no matter how small, with your own funds and expect reimbursement *without first consulting the staff in the Business Office*.

8. Sources of Supplies

The campus Central Stores and Receiving stocks a wide variety of small tools, lab supplies, building materials, plumbing and electrical parts, as well as chemicals. Departments must obtain supplies from the Central Stores whenever possible. When a needed item is not available from Central Stores, it may be purchased from an outside vendor. The University combines the purchasing power of the nine campuses and two laboratories to obtain pricing for system-wide contracts or campus supply/service agreements. A list of these vendors is available in the Business Office, 3118 Bainer Hall.

9. Laboratory Services, Supplies and Equipment

The teaching laboratories and equipment in Bainer Hall are under the general supervision of our Associate Development Engineer who is available to assist you with the design and development of laboratory equipment and can instruct you in the use of most equipment.

10. CHMS Computer Resources

CHMS has a full time Programmer/Systems Administrator who is responsible for all CHMS computers and can answer technical questions. There is also a part-time assistant who can help resolve many issues. You should direct to them requests for computer accounts, service, or repair, as well as suggestions for software or hardware improvements or upgrades. Email [CHMS IT Support](#). The Department strictly adheres to University policy and the law regarding software licensing.

11. Engineering Design and Development Services

Engineering Design and Development Services (EDDS) consists of the North Shop area. The South Shop area is located in 1329 Bainer Hall and is set up primarily as a professional manufacturing recharge machine shop. The North Shop area is located in 1220 Bainer Hall and is set up primarily as a shop for use by faculty, staff, and students working on projects for research or instruction. Both of these shop areas are state-of-the-art facilities including computerized machine tools, complete welding capabilities, and a Wood and Plastics Shop.

Faculty, staff, and students who have completed safety/general machine tool training may fabricate items in the North Shop area. This training normally is offered every three weeks, and students can enroll in a session by signing up in person in the North Shop.

The staff in the South Shop area are available to fabricate items for research or instructional use at UC Davis. To have design, development, machining and fabrication services performed by staff in the South Shop, you must complete a Service Request including the grant ID number or class number, description of service requested (verbal, text, engineering drawings, or sketches), and an authorized signature or email. Principal Investigators (usually faculty), the CHMS MSO, or the account manager (Business Office) can authorize work in the South Shop. Service Request forms can be obtained in the South Shop as well.

12. Other Services

Throughout the Davis campus, there are a number of other, usually specialized, services and sources of supplies available. These include high vacuum system maintenance, glassblowing, chemical supplies, electron microscopes, digital system design and photographic services. The CHMS Development Engineer can provide troubleshooting, repair, design and fabrication of some electrical and electronic equipment. Consult with the CHMS associate development engineer for further details.

13. Exiting the Department

When a student is ready to file his/her thesis/dissertation, and leave the program, a departmental exit checklist should be obtained from the Graduate Program Coordinator. This will ensure all the necessary steps have been taken to tie up loose ends in the department, i.e., return keys and books, clean out desk and lab area, dispose of chemicals, erase documents from department computers, and provide a forwarding address.

B. EMPLOYMENT

1. Graduate Studies Policies Affecting Student Employment

This is an outline of Graduate Division directives, for any questions or further information; please contact the Graduate Program Coordinator.

(I) Fee Remission Policy

UC Davis policy provides for full payment of in-state fees for graduate student employees from your funding source if you hold a title of Graduate Student Researcher at 25% time or more for the entire quarter. Associate-In, Teaching Assistant, and Reader titles are eligible for partial payment of in-state fees. To be eligible for this benefit, you must be employed in one or more titles for at least 25% time for an entire quarter. NOTE: If you qualify, it is extremely important that your paperwork is signed ON OR BEFORE the first day of the quarter or you may not be granted this benefit.

(ii) Graduate Student Appointment Requirements

- (a) The minimum grade point average required by Graduate Studies for Teaching Assistant (TA), Associate-In (AI) Graduate Student Researcher (GSR) and Readers appointments is 3.0. The Department requires all students to stay above a 3.25 GPA throughout their academic career and prefers a 3.5 minimum.
- (b) The number of quarters for which graduate students may be appointed to academic titles is now tied to normal academic progress. Graduate students may be appointed a maximum of 12 quarters in one or a combination of titles prior to Advancement to Candidacy for the Ph.D. degree. After advancement, a graduate student may be appointed up to 15 quarters in a research title and up to 15 quarters in a teaching title without an exception request (if departmental policies allow). You may be appointed up to 18 quarters in either category by exception to policy. The 18-quarter limit is absolute and no exceptions will be granted.

If you hold a partial appointment in any quarter, it will be counted as a full quarter toward the 12 allowed. You may wish to decline some jobs if only a small percentage of time is possible (for instance some Reader positions) or more actively pursue a second job which would increase the percentage of time worked in a quarter to 50%.

- (c) Students on Filing Fee will be allowed one quarter of appointment during the academic year without request for exception. Exceptions beyond this one quarter period are rarely granted by Graduate Studies.
- (d) Students on PELP may not hold student employment.

(iii) Definitions of Student Teachers

A Teaching Assistant/Associate-In is a registered full-time graduate student chosen for excellent scholarship and for promise as a teacher, and serving an apprenticeship under the active tutelage and supervision of a regular faculty member.

(iv) Criteria for Appointments

An appointee to the title of Teaching Assistant or Associate-In must be a registered graduate student in full-time residence. Each proposed appointment or reappointment is subject to certification by the Dean of Graduate Studies that the following conditions have been met:

- a. Maintenance of a 3.0 grade-point average in previous academic work. After a quarter of graduate work, the graduate record will be substituted for the candidate's undergraduate record in appraising scholarly performance.
- b. Current enrollment in an adequate program of study.

(v) Terms of Appointment

- (a) Student-teachers are appointed quarterly and are self-terminating unless the appointee is otherwise notified.
- (b) Appointment to the title of Teaching Assistant or Associate-In may not exceed half-time, nor may such appointment in combination with other employment with the University exceed half-time. Those employed 50% time should be expected to devote, during instructional and examination periods, twenty hours per week to such work including time spent in preparation, classroom and laboratory teaching, office consultation, and reading student papers. If appointed 25% time, the total is ten hours work per week.
- (c) The total length of service rendered in any one or any combination of the following titles may not exceed 12 quarters prior to passing the Ph.D. qualifying examination: Reader on annual stipend, Teaching Assistant, Research Assistant, Teaching Fellow, or Associate-In. This total length of service is independent of the percent of employment in any title, e.g., there is no distinction between a 10 hour week and a 20 hour week appointment.

(vi) Conditions of Employment

Teaching Assistants/Associate-Ins are not responsible for the instructional content of a course, for selection of student assignments, for planning of examinations, or for determining the term grade for students. Neither is the Teaching Assistant to be assigned responsibility for instructing the entire enrollment of a course or for providing the entire instruction of a group of students enrolled in a course. The Teaching Assistant is responsible only for the conduct of recitation, laboratory, or quiz sections under the active direction and supervision of a regular member of the faculty to whom final responsibility for the course's entire instruction, including the performance of Teaching Assistants, has been assigned.

2. SPEAK Test Requirements

The Speaking Proficiency English Assessment Kit (SPEAK) Test is produced and distributed by the Test of English as a Foreign Language (TOEFL) program. The test is designed to measure the comprehensibility, fluency, grammar, and pronunciation skills of a non-native speaker's oral English. The Department **requires** all international graduate students to take the SPEAK Test. It is required that students pre-register in person at the Center for Excellence in Teaching and Learning, 1350 Surge III. Location will be given upon registration. Please refer to the [SPEAK Test Schedule](#) for the current academic year's dates.

More information on the specifics of the SPEAK Test can be found at <http://cetl.ucdavis.edu/egw/speak-tests/> Exam scores are sent to departments for consideration in making TA hiring and assignment decisions; therefore, the earlier the test is taken, the more useful it can be. A low test score does not necessarily indicate that an international student will not make a successful TA, but it does suggest that the individual may need additional support from the department or might benefit from some of the campus language programs available to international graduate students.

The SPEAK test is scored from 20-60 in increments of 5. The TA selection committee generally expects a score of 45 or better. Students receiving a score of 40 or below will receive lower priority in TA assignments.

Any questions regarding the administration of the SPEAK Test, or a request for a change in your examination date, should be directed to the CETL at cetl@ucdavis.edu or 752-6050, or stop by our office in [1350 SURGE III](#).

3. Payroll

If you are employed by the Department, please see staff in the Business Office, 3118 Bainer Hall, to complete employment forms.

The normal payday for TAs, AIs, GSRs, and PGRs is on the first day of each month. Readers are paid on the sixth working day of each month or on a bi-weekly basis. Please remember that each time your status changes it is your responsibility to sign all Personnel Action Forms (PAFs) on or before the first day of the quarter. Keep in close contact with the Department payroll staff to insure your paycheck is received on time.

Be sure to inform the Business Office if your mailing address changes (for tax purposes).

If you are receiving Work-Study, you MUST turn in your timesheet by the payroll due date of each month or you will NOT be paid.

4. Terminal Vacation Policy

It is departmental policy to not pay students for unused accrued vacation at the time the student's appointment ends. How and when vacation time is to be used must be agreed upon between the student and major professor before the student is set up on payroll.

III. WHERE TO ASK QUESTIONS AND GET HELP

A. DEPARTMENT RESOURCES

Graduate Coordinator, Archietta Johnson, 3002 Bainer Hall
arcjohnson@ucdavis.edu or 530-752-7952

Although your major professor may be able to answer many of your general questions, when you have questions or comments regarding degree requirements, Program of Study, and/or your progress in the Materials Science and Engineering graduate program, you should seek the advice of a Graduate Adviser:

Professor Ronald J. Phillips, 3010 Bainer Hall
rjphillips@ucdavis.edu or (530) 752-2803

Assistant Professor Ricardo H.R. Castro, 3094 Bainer Hall
rhcastro@ucdavis.edu or (530) 752-3724

Assistant Professor Klaus van Benthem, 3098 Bainer Hall
benthem@ucdavis.edu or (530) 752-5117

Associate Professor Nael El-Farra, 3110 Bainer Hall
nhelfarra@ucdavis.edu or (530) 754-6919

Associate Professor Sangtae Kim, 2023 Kemper Hall
chmkim@ucdavis.edu or (530) 754-2254

Professor Pieter Stroeve, 3100 Bainer Hall
pstroeve@ucdavis.edu or (530) 752-8778

Professor Marjorie L. Longo, 3108 Bainer Hall
mllongo@ucdavis.edu or (530) 754-6348

Professor Roland Faller, 3112 Bainer Hall;
Graduate Affair Committee/Admission Committee Chair
rfaller@ucdavis.edu or (530) 752-5839

or, if necessary, the Department Chairperson:

Professor Robert L. Powell, 3004 Bainer Hall
rlpowell@ucdavis.edu or 530-752-5197 (for appointments)

from September 1, 2011
Professor Ahmet N. Palazoglu, 3104 Bainer Hall
anpalazoglu@ucdavis.edu or (530) 752-8774

B. OTHER SOURCES OF INFORMATION

Several other documents contain useful information related to academic aspects of your graduate study. These include:

General Catalog: <http://registrar.ucdavis.edu/UCDWebCatalog/> Published biannually, also available at the Bookstore.

Class Schedule and Registration Guide: <http://registrar.ucdavis.edu/csrg/> also available at the Bookstore.

Department of Chemical Engineering & Materials Science Safety Website:
<http://chms.engineering.ucdavis.edu/safety/>

GSA (Graduate Student Association): <http://gsa.ucdavis.edu/>

CHMS/GSO (Graduate Student Organization): <http://www.chms.ucdavis.edu/students/graduates/chmsgso/>

Student Life: <http://gradstudies.ucdavis.edu/prospective/studentlife.html>

Department of Chemical Engineering and Materials Science: <http://chms.engineering.ucdavis.edu>

College of Engineering: <http://engineering.ucdavis.edu/>

Office of Graduate Studies (OGS): <http://gradstudies.ucdavis.edu/>

OGS Graduate Student Handbook: <http://gradstudies.ucdavis.edu/students/handbook/>

OGS Advisers Handbook: http://www.gradstudies.ucdavis.edu/facstaff/GS202_AdvisersHandbook.pdf

Services for International Students and Scholars: <http://siss.ucdavis.edu/students.cfm>

Getting Help:

Grievances and Procedures: <http://sja.ucdavis.edu/grievance-procedures.html>

Judicial Affairs: <http://sja.ucdavis.edu/>

Rights to Privacy: <http://sja.ucdavis.edu/privacy-rights.html>

Sexual Harassment: <http://sja.ucdavis.edu/sexual-harassment.html>

Counseling and Psychological Services: <http://caps.ucdavis.edu/>