

Department of Chemistry
University of Hawai'i at Manoa

REQUIREMENTS FOR THE M.S. AND Ph.D. DEGREES
IN CHEMISTRY

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A. Introduction

This booklet has been prepared in order to familiarize chemistry graduate students with various aspects of our graduate program, including necessary rules and regulations. It is intended to be a detailed departmental supplement to the University of Hawai'i at Manoa General and Graduate Information Catalog, with which every graduate student should be familiar: the General and Graduation Information Catalog contains its own general rules and regulations which this department and its students must follow. The responsibility of advising incoming students, and of following students' progress within these regulations, rests upon the department's Graduate Committee.

Rules and regulations are only guidelines. Occasionally, exceptional situations arise which will be treated individually by the Graduate Committee. It is the student's responsibility to bring such circumstances to the attention of the Graduate Committee by a written request to its Chair.

Since various aspects of the graduate program are continually being evaluated, some rules may change from time to time. Such changes will be well publicized to all students after adoption by the faculty.

[Note: the Graduate Division at UH-Manoa uses the term "thesis" to denote the thesis for the M.S., and "dissertation" to denote the thesis for the Ph.D. This booklet uses the term "thesis" for both.]

B. General Requirements

1. Placement Examinations

Before the start of a graduate student's first semester, he/she will take placement examinations in analytical chemistry, instrumental analysis, inorganic chemistry, organic chemistry, thermodynamics, and quantum chemistry. The Graduate Committee will use the results of these exams to assess the background and training of each new student. The examinations cover subject matter from standard undergraduate courses; all graduate students are expected to possess a knowledge of chemistry equivalent to that of a University of Hawai'i B.S. chemistry major with a B average.

The student must show proficiency in a minimum of three areas by passing three of the six placement exams. One must be in the student's indicated research area. Individual research advisors may require the demonstration of additional proficiencies to ensure an adequate background, before a student starts his/her research training. Students will not be allowed to enroll in a graduate course in a given area of chemistry before proficiency in that area has been demonstrated. Any deficiencies revealed by the placement examinations must be removed before the start of the third semester. Removal of deficiencies may be accomplished by:

- a) Completion, with an "A" or "B" grade, of an appropriate undergraduate course, as specified by the Graduate Committee, or
- b) After independent study in the area(s) of deficiency, successful completion of the placement exam(s). For students who entered in August, the examinations are offered again in January and May. For students who entered in January, the examinations are offered in August and again the following January.

2. First Semester Advising, Course Work, and Seminar Attendance

A member of the Graduate Committee will meet with each student prior to registration and plan the first semester's courses, which will reflect the student's interest and his/her performance on the placement examinations.

All students are expected to carry six (6) credit hours and to attend departmental seminars and divisional seminars related to their research interests. During their second and subsequent years, all students enrolled in the Ph.D. program are required to register each semester for Chem 691/2 until a preliminary conference (see below) has been completed. Students in the Ph.D. program enroll in Chemistry 691 and 692 in the credit/no credit (Cr/NC) option only. M.S. candidates must take the course for at least one semester with the (A-F) grade option.

3. Choice of Program and Research Advisor

Every student must make two important decisions during his/her first semester of graduate study. He/she must decide whether to pursue the M.S. or Ph.D. degree, and he/she should select a research project and a thesis advisor.

When a student first enters the University, he/she enrolls either in the M.S. or Ph.D. program. The initial choice is not binding; because the first semester's program is identical for both degrees, a change can be made easily. However, since degree programs may vary significantly beginning with the second semester, every student should carefully consider which program best suits his/her interests. While the decision is largely left to the individual, in some cases the Graduate Committee may advise, or require, enrollment in the M.S. program. This is usually done if a student's undergraduate deficiencies or his/her subsequent academic performance indicate that he/she may not be able to pursue Ph.D. study successfully. If subsequently his/her performance in the M.S. program indicates his/her competence, entry into the Ph.D. program may be granted upon completion of the M.S. degree by petition to the Graduate Committee.

For either degree, an independent research project must be completed and the results written up in the form of a thesis. This research is carried out under the direction of one of the chemistry graduate faculty members who serves as a student's research supervisor and as chair of his/her Thesis Committee (see below). Since research is the most significant portion of either M.S. or Ph.D. training, the selection of a research advisor and project should be the subject of careful thought and consideration. Initially, a student should decide the broad area in which his/her interests lie and should interview all faculty members whose research falls in that area. Brief descriptions of faculty interests and of current research projects are outlined on the Department's web pages at <http://www.manoa.hawaii.edu/chem/>. One of the faculty members should be selected as research advisor. This selection should be made before the start of the second semester; a limited extension may be granted on request. Before making a final choice each student must interview a minimum of four members of the chemistry graduate faculty and obtain their signatures on a departmental form, which is available in the Chemistry Office. The student shall then discuss his/her choice of advisor with a member of the graduate faculty, one who was not interviewed, preferably the Graduate Committee Chair, or alternatively the Department Chair, or Associate Chair if both of the above were interviewed, and shall submit the completed form indicating his/her choice to the Chemistry Office.

The faculty member, once selected, will serve as a student's research and academic advisor, and as his/her Thesis Committee Chair; the faculty advisor and the student jointly plan an academic and research program that will ultimately lead to the graduate degree. During the second semester and each semester thereafter, at least one credit hour of directed research (Chem 699, 700, or 800) should be taken. The faculty advisor must approve the proposed course list each semester prior to registration.

If during subsequent semesters, a student finds him/herself considering a change of advisor, he/she should discuss the advisability of that change with the Graduate Committee Chair (or alternatively as indicated two paragraphs above) and with any others whose advice he/she values. That faculty member will outline the necessary procedures for completing the change.

4. Academic Standing

To remain eligible for further graduate work and to be awarded a graduate degree, a student must have at least a B average (3.0 grade point ratio) in all course work. Furthermore, he/she must also have at least a B average in all graduate courses (i.e., courses numbered 600 and above) and for all courses taken as a classified graduate student. See the University Catalog. If a student's grade point ratio falls below 3.0, he/she is placed on academic probation and will be dropped from the graduate program if he/she has not raised his/her average to at least 3.0 after one semester.

For the lifting of academic probation, a maximum of six credits of Chem 699 will be included in the calculations of the student's grade point ratio (G.P.R.). If six or fewer credits have been earned, they will be included. If more than six credits have been earned, the Chem 699 grades will be averaged separately, and six credits at the calculated average will be applied toward the calculation of the G.P.R.

5. Teaching Requirement

The Chemistry Department requires that all degree candidates serve as Teaching Assistants for at least two semesters.

6. Graduate Assistantships

The teaching requirement is normally fulfilled while the student is appointed as a Teaching Assistant. These Assistantships are funded by the University and are awarded by the Department to classified graduate students in good standing.

Numerous Research Assistantships are available within the Department. These are funded from extramural research grants and are awarded to classified graduate students in good standing by individual faculty members.

Additional information on Teaching and Research Assistantships can be found in the booklet "The Graduate Assistant Handbook," available in the Chemistry Office.

7. Time Limits

If a student's academic research and teaching performance is satisfactory, teaching and research assistantships are available for a total of 3 (M.S.) or 4 (Ph.D.) years. Third year M.S. students are given support on a low priority basis, i.e. they may or may not receive an

assistantship depending on the availability of funds. Exceptions to the four year maximum for Ph.D. students are sometimes granted to individuals who make satisfactory progress. These exceptions must be approved by the Graduate Dean.

In addition to these time limits on financial support, there are also academic time limits.

Candidates for the master's degree who fail to complete all requirements within five years after admission to candidacy must be readmitted to candidacy by the Dean of the Graduate Division before they may proceed. All work must be completed within seven years preceding the date upon which the degree is conferred. Usually, however, an M.S. degree requires at least two years in residence.

For Ph.D. students, the following time limits are applicable.

- a) Ph.D. students are encouraged to complete their work within five years. Priority in filling departmental teaching and research positions are handled accordingly.
- b) At the discretion of the Graduate Committee, a student may be required to repeat, or to complete substitutes for, courses which were taken more than seven years before the final oral examination.

It is a policy of the Graduate Division that a student in the Ph.D. program will be expected to complete all requirements within seven years after admission into the doctoral program. Candidates who fail to complete all requirements in the specified time may be dropped from the program. Readmission for a limited period only is possible upon favorable recommendation by the field of study and with concurrence of the Dean of the Graduate Division.

8. Travel

As State employees, students who hold teaching or research appointments are considered to be on duty from one week prior to fall registration through spring commencement. The only officially recognized holidays are Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, New Year's Day, Martin Luther King Day, Presidents' Day, Kuhio Day and Good Friday. Traditionally, academic people travel during periods when classes are not in session, and we respect this tradition. Nonetheless, most TA's and RA's will have duties during final examinations, and during registration, in addition to the commitments to their research director. As a consequence the Department must be informed of their plans during recesses.

Graduate Assistants who plan trips must obtain clearance from the Department Chair and from their research advisor by submitting a request in writing at least one week prior to departure. This written request will include an itinerary, addresses and phone numbers where he/she may be contacted, and a list of the persons who will perform any duties that may be missed.

If professional activities (e.g. attendance of meetings, seminars, etc.) are planned, a university travel request should be filed. Forms are available from the Department Business Office. This will insure insurance coverage in case of accident.

It is expected that TA's will make all arrangements for substitutes during their absence. These arrangements must be approved in advance by the professor(s) in charge of the course(s).

9. Final Oral Examination

A final oral examination is required for both M.S and Ph.D. candidates. It must be scheduled through the Department Office no less than two weeks prior to the examination. The Department Secretary will post this information on the bulletin boards.

10. Final Clearance

All students must turn in a completed clearance form before the Department will certify that they have completed the requirements for a degree. The clearance form is available from the Department Office at the time the final oral is scheduled. This form certifies that the student has checked out with the stockroom, has turned in his/her keys, etc.

C. M.S. Program

1. Course Work

Eighteen credit hours of courses carrying graduate credit are required for the M.S. degree. For these courses the credit/no credit option is not allowed. Of these, one must be in Seminar (Chem 691 or 692). None may be in Directed Research (Chem 699). The remaining 17 credit hours of course work must be selected, in close consultation with the student's research advisor, from the graduate offerings in chemistry (a minimum of nine credits), mathematics, and the other sciences. To fulfill the Graduate Division requirement of thirty credit hours for the M.S. degree, twelve credits of research (Chem 699 or 700) in addition to the courses mentioned above may be used. At least two full semesters of course work must be completed while in residence at the University of Hawai'i.

2. Thesis, Thesis Committee, and Final Oral Examination

Since the Chemistry Department does not offer a non-thesis Master's degree, all M.S. candidates must complete the Graduate Division requirements for a Plan A (Thesis) Master's degree. At the start of the degree candidate's second year he/she must, in consultation with his/her research advisor, choose a Thesis Committee, which must be approved by the Graduate Committee. An M.S. Thesis Committee is composed of three members, two of whom must be from the chemistry graduate faculty. It is chaired by the candidate's research advisor. At the same time, the student prepares a proposal describing his/her research project, which is distributed to the Thesis Committee members, who by their approval indicate their willingness to serve on the Committee.

Progress of the student towards obtaining the degree is monitored by submission of a form, signed by the thesis advisor, certifying that adequate progress has been made. The Thesis Committee, at its discretion, may request a written progress report from the student. This request shall be forwarded to the student by Sept. 1. The report or the form is due in the Chemistry Office by October 1 of each year after the student's fourth semester in the program.

Upon completing his/her research project to the satisfaction of his/her research director, a M.S. candidate writes a thesis based on the results. Before this, the student should consult the Graduate Records Office for details of thesis preparation: deadlines, forms to be completed, number of copies Graduate Division requires, etc. After the thesis has been approved by the research advisor, the student submits copies to members of the Thesis Committee and schedules his/her final oral examination. It can be held no sooner than two weeks after copies of the thesis have been distributed to the Committee, and will consist of a defense of the candidate's research as presented in the thesis. If the thesis and its oral defense are satisfactory to the Committee, the members will sign the thesis and requisite forms, which then are submitted to the Graduate Division. The Committee may suggest some revision in the thesis. In that event, the thesis will not be signed until these changes have been completed; usually a second oral examination is not required. If, however, major changes are needed, or substantive weaknesses are uncovered, another oral examination may be required, or the degree may not be conferred. In addition to the thesis copies required by the Graduate Division, TWO bound copies are needed by the Department: one for the departmental library and one for the thesis advisor.

3. Admission to the Ph.D. Program

An M.S. student may apply for admission to the Ph.D. program upon successful defense of his/her M.S. thesis. The letter of application to the Graduate Committee Chair should include the name of a member of the chemistry graduate faculty who has agreed to serve as Ph.D. research advisor. The student should request that letters of recommendation be submitted by each of the members of his/her M.S. thesis committee.

Upon admission, students who had not previously taken the Qualifying Examination must complete this requirement within 12 months, and may attempt the examination two times. Students who have taken this examination before must complete this requirement within 7 months (one attempt). Upon successful completion of the Qualifying Examination, the Comprehensive Examination must be completed as described in Section D. 3. Students who have previously passed the Qualifying Examination must schedule the Comprehensive Examination to occur within 5 months of admission.

D. Ph.D. Program

1. Course Work

The planning of an academic program is left largely to the individual student in close consultation with his/her research advisor. In some cases, however, the Graduate Committee or the Thesis Committee (see below) may require specific courses to be completed.

For the doctor's degree the candidate must complete a minimum of six semesters of graduate study, of which at least three must be in residence at the University of Hawai'i. At least 24 credits must be obtained in chemistry courses listed under that departmental heading in the University Catalog (exclusive of Chem 699), or in related fields. Six credits must be outside the area of his/her specialization, and 12 of the credits must be taken at this University. Except for Chem 691, 692, and 699, the Cr/NC option is not allowed. Students who have earned a master's degree in chemistry from an accredited institution are allowed to transfer residency credits equivalent to two semesters toward the doctor's degree. Up to the time of their preoral conference (see below) all Ph.D. candidates must register for Chem 691-692 (Seminar) each semester (Cr/NC option only).

2. Thesis, Thesis Committee

The purpose of the Ph.D. degree is the education and training of chemists to carry on independent study and research. Hence, the most significant and important activity by any Ph.D. student is his/her research project, the results of which are ultimately written up as the Ph.D. thesis. The extraordinary importance of research to the training of a Ph.D. is mirrored in the numerous research-oriented requirements, beginning with the student's first semester when he/she chooses a research advisor and a tentative research project. The student therefore would have at least one semester plus a summer to explore and develop a research project.

Prior to beginning the second year of study, each Ph.D. candidate must select a Thesis Committee of five members, at least three of whom must be members of the chemistry graduate faculty. One of the five members must be faculty from any unit *except* Chemistry. The student's advisor chairs the Committee. All members of the Thesis committee must be members of the Graduate Faculty of the University of Hawaii (see <http://www.hawaii.edu/graduate/wa/selectmember.php> for comprehensive list). The composition of the Thesis Committee, selected in consultation with his/her research director, must be approved by the Graduate Committee.

Progress of the student towards obtaining the degree is monitored by submission of a form, signed by the thesis advisor, certifying that adequate progress has been made. The Thesis Committee, at its discretion, may request a written progress report from the student. This request shall be forwarded to the student by Sept. 1. The report or the form signed by the thesis advisor is due in the Chemistry Office by October 1 of each year after the student's successful completion of the first part of the Comprehensive Examination.

3. Qualifying Examination

The Graduate Division requires that a qualifying examination be passed in a Ph.D. candidate's field of study. It is designed to test core material comprehension, that is, the student's mastery of material in graduate credit courses in his/her chosen specialty. An adequate mastery of this

material can be demonstrated by passing a qualifying examination (written) of approximately 6 hours duration. The content of the examination will be similar to material which is covered in the 2-5 graduate courses that each division (analytical, inorganic, organic, or physical) considers core courses. Each student with the approval of his/her thesis advisor and the Graduate Committee will select one or more divisions in which he/she would like to be examined and which are related to his/her chosen research specialty. A pass is determined by a student's score in the selected division(s). The qualifying examination will be offered twice annually. Exams will be scheduled for the week before the start of classes in the fall and spring semesters. Details of the examination format and grading system will be determined by the individual divisions and by the Graduate Committee. This qualifying examination must be completed no later than the beginning of the 5th semester, and may be attempted no more than three times.

4. Comprehensive Examination

Each student must also pass a two-part comprehensive examination. This examination consists of an oral defense of (1) a resume of the student's thesis research and its current status, also called the *progress report*, and (2) an *original research proposal*.

Students beginning graduate study in or after Fall 2008 should plan to take the first part (progress report) before the end of their third semester. The second part (original research proposal) must be taken within one semester of demonstrating mastery of the core material, that is, of passing the qualifying examination. For instance, a student who passes the January Qualifying Exam is expected to take the second part of his/her Comprehensive Exam no later than December of the same calendar year. Students who pass the August Qualifier are expected to complete their Comprehensive Exams by the end of May of the following calendar year. In nearly all cases, it is anticipated that most students will complete the first part of the Comprehensive Exam before the second part. There are some cases where both parts shall be attempted in the same semester. There are no foreseeable instances in which the second part shall be completed significantly earlier than the first part.

Students who started their graduate study before the Fall 2008 semester should plan to complete both parts within one semester of demonstrating mastery of the core material, that is, of passing the qualifying examination. The two parts should be scheduled on different days, but not more than 2 months apart.

The Thesis Committee constitutes the Oral Examination Committee. The Examination Committee may wish to add one chemistry graduate faculty member. This will normally be done when in the judgment of the Examination Committee an additional expert opinion is needed to evaluate the student's original research proposal. The examination is normally restricted to the Committee members but may be opened to Department faculty and students by unanimous consent of the student and his/her Committee.

The student arranges a time and place for each of the examinations, notifies each Committee member in writing, and provides written notice of these particulars and the title of the research proposal (see below) to the Chemistry Office. At least two weeks before the examination, the student submits a hardcopy of one or both of the following items to the Committee members, as appropriate:

- a) **A report providing an overview of the progress on his/her thesis research project.** The report should include both accomplishments and future plans. Any published or submitted manuscripts should be included in the report as appendices.

Students beginning graduate study in or after Fall 2008 will take this exam after spending their first summer in their respective graduate research programs. Hence, it is expected that there will be adequate preliminary results to demonstrate that there is evidence for success in the chosen research area. It is also expected that the student will be able to answer questions pertaining to the literature in his/her area.

Students who started their graduate study before the Fall 2008 semester will be taking this exam at a much later stage. It is therefore expected that the amount of data from and background knowledge of these students will be proportionately higher.

- b) **A summary of a research proposal.** A research proposal is based on an original research idea. The written summary of the proposal should include background material leading to the proposal, including a full bibliography. The proposal can be on any topic within the realm of chemistry, not too closely related to the student's thesis project. The student is advised to seek the judgment of his/her research advisor on the suitability of the topic selected.

A proposal should consist of:

- An introductory section, in which the general subject matter of the work is placed in the context of current chemical knowledge.
 - What is unique about it? What general principles are involved? What has been done previously?
- A description of the proposed activities, with clear distinction between prior work and the proposed studies.
 - How will the proposed work differ from previous research?
 - How will these differences serve to enhance chemical knowledge significantly? The originality of a proposal hinges on how substantively this last question can be answered.
 - Is it experimentally or theoretically feasible? Here, discussion and justification of proposed apparatus, techniques, or computation procedures are appropriate; attention should be paid to the magnitude of expected signals or yields, to apparatus costs and to the complexity of data analysis. The student should be prepared to substantiate these points, including such details as approximate costs and availability of instrument, chemicals, or services.
- A short one paragraph summary that describes the most significant aspects of the proposed study as it relates to present knowledge. Little can be said about the important matter of selecting a specific topic as this is an individual decision. The common pitfall of trying and rejecting too many ideas with great loss of time should be avoided, as many if not all areas of research have identifiable frontiers, at which an original investigation is worthwhile.

If the written report and/or the proposal are clearly unsatisfactory, they may be returned within one week for rewriting. The examination will then be rescheduled.

A decision on the outcome of Parts I and II of the oral examination is reached by a simple majority vote of the Examination Committee. If the student fails to complete the examination satisfactorily, it is the responsibility of the Examination Committee to recommend either:

- a) Conditional Pass -- a rewriting of the proposal or progress report, or other task, to the satisfaction of the Committee without reexamination.
- b) Reexamination -- a revision of the proposal, or submission of a new proposal, and/or additional progress in research, is required.

Students beginning graduate study in or after Fall 2008 who do not pass the progress report portion of the exam may have one more attempt, but must schedule and pass the exam by the end of their fourth semester.

Students who started their graduate study before the Fall 2008 semester requiring a re-take on either part will normally schedule within not less than two months.

- c) Failure -- the student is dropped from the Ph.D. program in chemistry. Student shall have the option to transfer to the M.S. program.

After each part of the Comprehensive Exam, a form for reporting the results of the examination must be signed by the Committee members and submitted to the Graduate Committee Chair. In the case of a conditional pass, a second form must be signed by the Committee members when they are satisfied with the rewritten proposal.

This comprehensive examination (oral) should not be confused with the final oral examination (thesis defense), which is described in part 5 below.

5. Preoral Conference and Final Oral Examination

Between three and nine months before the student plans to defend his/her dissertation, which is the final requirement for the degree, he/she schedules a preoral conference with his/her Committee. During this conference the student SUMMARIZES his/her research and his/her plans for further research before writing the thesis. The preoral conference may also be included as a presentation in the Chem 691/692 seminar series. The Committee evaluates the work and its suitability for a Ph.D. thesis and may suggest further experiments to be performed before the thesis is written. In cases where major differences are uncovered, the Committee may specify additional requirements and/or require a second preliminary conference at some future date. In any event, if more than nine months elapse between the conference and the final defense, another preliminary conference is mandatory.

When the student and the Committee are satisfied that research results appropriate for the degree have been obtained, the student writes them up in the form of a Ph.D. thesis. Before this, the student should consult the Graduate Records Office for details of thesis preparation: deadlines, forms to be completed, number of copies Graduate Division requires, etc. After approval by his/her research advisor, copies of the thesis are distributed to Committee members, and a final oral examination is scheduled by the student. The final oral can be held no sooner than two weeks after copies of the thesis have been distributed to the Committee members.

The final oral examination consists of

- a) A seminar by the student, of approximately fifty minutes duration, describing his/her research, including results. The seminar is open to the public. Faculty and students encouraged to attend. Time is allowed for general questions and answers.
- b) A question period following the seminar, which is conducted by the Thesis Committee.

If the Committee members find no faults or offer no corrections, they will sign the thesis and requisite forms, which should then be submitted to the Graduate Division. In addition to the thesis copies required by the Graduate Division, TWO bound copies must also be submitted to the Chemistry Department: one for the departmental library and one for the thesis advisor. Commonly, however, minor changes are required in the thesis; usually it will not be signed until these have been made. In cases where major errors or weaknesses are discovered, additional work and a second final oral examination may be required, or the degree may not be conferred. It is only fair to state that this latter action is extremely rare.

APPENDIX I

Summary of Procedures and Requirements for the M.S. Degree in Chemistry

<u>Procedure or Requirement</u>	<u>Time at Which It Should Be Completed</u>
1) Take Placement Examinations	At announced times before 1st semester
2) Remove deficiencies indicated by the Placement Examinations	Prior to start of 3 rd semester
3) Select research advisor after interviewing at least four chemistry faculty members	Prior to the start of the 2 nd semester, unless extension approved

A form with the signatures of four chemistry graduate faculty members must be submitted to the Chemistry Office before an advisor can be selected.

4) Begin research	Beginning of 2 nd semester
5) Select Thesis Committee	Beginning of second year of study
6) Get research advisor to sign certification of degree progress form or prepare a progress report.	Due in Chemistry Office each October 1, after three semesters in residence

The choice of Thesis Committee must be approved by the Graduate Committee. Forms bearing the signatures of the Thesis Committee indicating their consent to serve on the Committee and their approval of the thesis topic must be submitted to the Graduate Division.

7) With the approval of research advisor, submit draft copies of thesis to the Thesis Committee	At least two weeks prior to the Final Oral Examination
8) Advertise, schedule, and hold Final Oral Examination. Prior to this examination, check out with the stockroom, and return all permanent equipment.	

A form certifying the successful completion of the Final Oral Examination must be signed by the Thesis Committee and submitted to the Graduate Division.

- 9) Return completed clearance form to Department Office (see page 6)
- 10) Complete final draft of thesis incorporating any changes suggested in the Final Oral Examination. Submit required copies (unbound) to the Graduate Division as rapidly as possible. Submit copies for the Department, your advisor, and yourself for binding.

Two copies of the thesis and a form indicating the Thesis Committee's approval of the thesis must be signed and submitted to the Graduate Division. Directions on other forms to be completed, thesis preparation, deadlines, etc. are available from the Graduate Records Office.

APPENDIX II

Summary of Procedures and Requirements for the Ph.D. Degree in Chemistry

<u>Procedure or Requirement</u>	<u>Time at Which It Should be Completed</u>
1) Take Placement Examinations	At announced times prior to the start of the 1st semester
2) Remove deficiencies indicated by the Placement Examinations	Prior to the start of 3 rd semester
3) Select research advisor after interviewing at least four chemistry faculty members	Prior to start of 2 nd semester, unless extension approved

A form with the signatures of the four chemistry graduate faculty members interviewed must be submitted to the Chemistry Office before an advisor can be selected

4) Begin research	During second semester
5) Select Thesis Committee	Prior to the start of the 3 rd semester

The choice of Committee members must be approved by the Graduate Committee. Forms bearing the signatures of the Thesis Committee indicating their consent to serve on the Committee and their approval of the thesis topic must be submitted to the Graduate Division.

6) Complete Part I (Progress Report) of the Comprehensive Exam	Before the end of the 3 rd semester
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After 6) has been completed, a form attesting to its completion must be submitted to the Chemistry Office.

7) Complete Qualifying Examination (written)	Prior to the start of 5th semester
8) Complete Part II (Research Proposal) of the Comprehensive Exam	One semester after completion of the Qualifying Examination

After 8) has been completed, a form attesting to its completion must be submitted to the Graduate Division.

<u>Procedure or Requirement</u>	<u>Time at Which It Should be Completed</u>
9) Get research advisor to sign certification of degree progress form or prepare a progress report	Due in Chemistry Office each October 1 after 4 semesters in the program and before the Preoral Conference is held
10) Schedule and hold Preoral Conference	Between 3 and 9 months before Final Oral Examination
A form certifying the completion of the Preoral Conference must be submitted to the Chemistry Office. Report to the Graduate Division to become familiar with their schedule or deadlines.	
11) With approval of research advisor, submit drafts of copies of thesis to Thesis Committee	At least 2 weeks prior to Final Oral Examination
12) Schedule and hold Final Oral Examination. Note that this examination must be advertised University-wide, in advance. Prior to the Final Oral Examination, students must check out with the stockroom and return all permanent equipment.	
A form indicating the successful completion of the Final Oral Examination must be submitted to the Graduate Division.	
13) Return completed clearance form to Chemistry Office (see page 6)	
14) Complete final draft of thesis incorporating any changes suggested during Final Oral Examination. Submit required copies (unbound) to the Graduate Division as rapidly as possible. Submit copies for the Department, your advisor, and yourself for binding.	

Two copies of the thesis and a form indicating the Thesis Committee's approval of the thesis must be signed by the Committee members and submitted to the Graduate Division. Directions on other forms to be completed, thesis preparation, deadlines, etc. are available from the Graduate Records Office.