

2010-2011

Graduate Handbook

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Regulations

Governing Graduate Study in Chemistry

Department of Chemistry

University of Cincinnati

TABLE OF CONTENTS

	Page
INTRODUCTION	3
SECTION A – Admission, Registration, and Graduate Credits	3
Application and Admission	3
Registration	4
Graduate Credits and Grading	5
SECTION B - Requirements for Graduate Degrees	6
Requirements for the M.S. Degree	6
Plan A (Thesis Option)	6
Plan B (Non-Thesis Option)	7
Requirements for the Ph.D. Degree	8
A. Qualification	8
B. Graduate Credits and Post-Qualification Courses	11
C. Teaching Experience	11
D. Candidacy Examination	11
E. Dissertation and Public Defense	13
SECTION C – Research Advisor Selection and Committees	14
Selection of a Research Problem and Advisor	14
Procedure	15
Changing Research Advisor	16
Graduate Committees	16
M.S. Degrees	16
Ph.D. Degrees	16
SECTION D - Limitations on Eligibility and Support	16
Continuing Financial Support and Eligibility	16
Time Limits	17
SECTION E - Special Rules and Provisions	18
FORMS (in reverse order so that you can tear them off in sequence from the back in)	

INTRODUCTION

The Office of the Vice Provost and Dean of the Graduate School oversees graduate instruction and research in the pursuit of graduate degrees. The All-University Graduate Faculty determines the educational policy of the Graduate School, regulates the admission of students, their candidacy and the awarding of degrees to them. In determining the educational policy of the Graduate School, the graduate faculty does leave the departments free to determine specific courses of study, precise manners of instruction, and individual methods for evaluating the results of examinations. Consequently, the Department of Chemistry has formulated and revised over the years "Regulations Governing Graduate Study in Chemistry" at the University of Cincinnati. These are presented here, along with additional excerpts from or references to the University Graduate Handbook that clarify certain points of interest to graduate students.

It is the intent of the Departmental regulations governing graduate study and this Departmental graduate handbook to be in complete compliance with the rules and policies of the University of Cincinnati Graduate School. Amendments will be made as changes are made in the rules and policies of the graduate school. The URL for the graduate school is www.grad.uc.edu. The University Graduate Handbook and other important information relevant to graduate students and graduate study can be accessed through this site.

SECTION A – Admission, Registration, and Graduate Credits

Application and Admission

All applications for admission to the graduate program in chemistry at the University of Cincinnati must now be submitted online. Information about the graduate program and a link to the online application can be found by choosing the Graduate Program link on the left side of the Chemistry Department web site (www.che.uc.edu), then clicking on “Applying to Graduate School” under the Information heading. The application includes a completed application form, official transcripts of all undergraduate and graduate work, as well as three letters of recommendation. The Graduate Record Examination (GRE) general test is required for admission to the graduate programs of the Department of Chemistry. International students must also take the TOEFL exam. An application is not considered complete until a non-refundable application fee determined by the Graduate School of the University of Cincinnati has been received.

For admission to full graduate standing in the Chemistry Department of the University of Cincinnati, a student must have a Bachelor's degree in Chemistry or a closely related field from a college or university regarded as standard by a regional or general accrediting agency. The Department does not have a fixed grade point average requirement for admission, recognizing the diversity of undergraduate programs in the country. Typically, the applicant should have a B average or better in relevant undergraduate coursework (math and science courses), or otherwise give strong evidence of promise of ability to do graduate work (such as exceptional letters of recommendation or high scores on the GRE).

Students with undergraduate majors other than chemistry may be admitted provisionally if they lack essential undergraduate coursework in chemistry. Remediation of the deficiencies is decided on a case-by-case basis, and usually involves successfully completing one or more undergraduate courses, without graduate credit. Provisionally admitted graduate students may obtain full graduate standing when these deficiencies have been corrected, assuming they

have also maintained a satisfactory academic record in all coursework taken as part of their graduate program.

Unclassified students may be admitted to the Graduate Division for study without being admitted to the graduate degree programs of the Department of Chemistry. Students so admitted may take courses for graduate credit, provided eligibility requirements for the course are satisfied. These courses will generally be applied to degree requirements of the Department, should the student subsequently apply and be admitted to one of the graduate programs of the Department. Acceptance of these credits will also be contingent on satisfactory performance in these courses. NOTE: Unclassified students may not participate in any part of the Candidacy Examination [*vide infra*].

Foreign students may be admitted to full graduate standing only. Complete transcripts of undergraduate and graduate work in their native country and submission of results from the GRE are required^{[MJB1][TR2]}. All foreign applicants are required to submit the results from the TOEFL and TSE, taken in the student's own country prior to admission. Students of foreign origin who have lived in the United States for two or more years may demonstrate English language proficiency in other ways, such as obtaining a degree in a U.S. college or university. Upon admission and arrival at the University of Cincinnati, all foreign students are required by state law to take the Oral English Proficiency Exam; those students not performing to a satisfactory level on this exam will not be permitted to perform teaching duties until satisfactory performance is demonstrated. Students will be informed of the courses available at the University, through which they may enhance their English language skills. Students not passing the exam will be retested according to the published University schedule of examinations. If a student has been awarded a teaching assistantship, yet does not pass this entrance requirement, the student will retain that assistantship for a maximum of one year and will generally be assigned duties within the Department that do not involve instruction/student contact. Beyond one year, if the student has not passed the Oral English Proficiency Exam, (s)he will not be eligible for a teaching assistantship. If the student passes the exam at a later time, he or she may regain the assistantship (subject to satisfactory academic performance as defined in Section B of this handbook^[TR3]).

The Department of Chemistry endeavors to make prompt decisions when an application file is completed. The deadline for applications is listed with the Graduate Program information on the department's web site. Prospective applicants are encouraged to complete the process as early as possible. Consideration of applications generally begins by early January for the following Autumn class. Admission decisions are based solely on the materials provided by the student in the application file,^[MJB4] namely the application forms, transcripts of all college-level work, letters of recommendation and any additional relevant materials the applicant wishes to include. Admission decisions are not made on the basis of race, age, sex, sex orientation, religion, or handicap, except where the handicap may place the student or other students, faculty or staff in physical danger. Applications from minority groups and women are strongly encouraged.

Students accepted into the graduate program of the Chemistry Department must complete all University requirements prior to registration, including but not limited to documentation of required medical examinations and all employment-related paperwork.

Registration

A student must be registered in the graduate division in order to earn graduate credit, and must follow the procedures outlined above to gain admission to the graduate programs of the

Department of Chemistry. A student is expected to register each quarter while in residence and active in the graduate program. Students should consult their Advisor about the courses for which they should register. If there are any questions about course requirements or other aspects of registration, the student should consult the Graduate Program Director. All first year graduate students must consult the Graduate Program Director prior to registering. If a student registers during the final registration period immediately prior to the start of classes, a schedule/bill is produced immediately, and registration is complete only upon full payment. Later registration is available after the first official day of classes of the quarter, and carries with it a late fee. Students may alter their schedules once registered by completing a drop/add form. Classes may be added to a schedule only through Friday of the second week of classes (unless the college offering the course has established an earlier deadline). After that time, only drops will be processed. Graduate students in the Department of Chemistry are urged to consult with their Advisor and/or the Graduate Program Director prior to dropping a course. A student may also be withdrawn by the instructor at any time in the quarter when excessive absences have been incurred. Students are encouraged to consider the financial ramifications of withdrawal (see the University Graduate Handbook) prior to withdrawing.

A student will normally register for twelve graduate credits each quarter, including the Summer Quarter^[MJB5] (unless supported by a grant), until (s)he accrues 260 graduate credits. After such time (s)he must register for at least one graduate credit each Autumn Quarter to retain his/her candidacy. Students with 260 or more graduate credits (209 for those entering with a M.S.) are ineligible for funding from the State of Ohio. This applies to UGS and TA support.

Students may audit a course when the credits are not needed for the degree program, and the approval of the student's advisor has been obtained. Admission to a course with audit status is at the discretion of the instructor, who is not obligated to accept a student for audit. Audit hours do not count toward the 260 credit limit, nor are they included in the determination of full-time status. Students may also elect to take a course on a Pass/Fail basis, with the approval of both the student's Advisor and the instructor. Qualification courses in the Department of Chemistry may not be taken on a Pass/Fail basis.

Any and all courses taken outside the Chemistry Department, except those specified in the polymer or theoretical chemistry options, must be approved in writing prior to registration by the student's M.S. or Ph.D. committee and the Graduate Program Director. *This approval is required even if the course is not being used to satisfy any graduation requirement.*

Graduate Credits and Grading

A full time course of study in the graduate program of the Department of Chemistry consists of registration for 12 or more graduate credits each quarter. Graduate credits are earned for successfully completing courses at the University of Cincinnati with course numbers of 700 or greater. Courses at the 500 or 600 level are considered dual level, and graduate credit may be earned for these courses, and applied to the course requirements for the M.S. or Ph.D. degrees in the Department of Chemistry, subject to restrictions outlined in Section B of this handbook. Full-time students who receive a UGS are required to register for 12 graduate credits in each quarter that the UGS is received. Other forms of support may also have registration requirements, and the student is responsible for meeting such requirements. The^[MJB6] maximum number of credits per quarter that may be taken (without an overload fee being charged) is 18. Courses taken with "audit" status count toward this limit of 18 credits. Students with outside work, or who for other reasons can devote less than full time to

graduate study, will be allowed to register for fewer graduate credits, as recommended by the Graduate Program Director. Foreign students, under the terms of their visas, must be enrolled as full time students^[TR7].

Grades are assigned by the instructor in each course, in accordance with the accepted policies of the graduate division. Recognized grades are: A (4.00), A- (3.67), B+ (3.33), B (3.00), B- (2.67), C+ (2.33), C (2.00), F (0.00), P, U, T, I/F, W, SP and UP. The grades P and U represent satisfactory and unsatisfactory performance, respectively, in certain advanced courses in the Department. T represents audit status (see above) while I/F indicates incomplete, when the student fails to complete one or more course requirements, such as the final examination. The grade of W denotes an official withdrawal, and SP and UP indicate satisfactory or unsatisfactory work for courses "in progress" and are generally used in the Department of Chemistry for ongoing thesis/dissertation research. In these courses, SP and UP grades are given for all terms except the final term in which the course is to be taken. During the final term of an ongoing research course, a standard letter grade is given. Note that by University regulations, a student cannot graduate with an NG or F grade in a required course. The Department must request a waiver of the requirement for each course for which an NG or F grade appears.

SECTION B – Requirements for Graduate Degrees

Requirements for the MS Degree

A student desiring to earn the M.S. degree in this department may do so under either of two plans. Plan A requires a research thesis, while Plan B is a non-thesis option that emphasizes more course work. The requirements of each of these plans are given below. The Graduate School at the University of Cincinnati requires a minimum of 45 graduate credits for a Master's degree.

Plan A (Thesis Option)

- Complete with passing grades 31 credits of graduate course work. (Grade point requirements are given below.) The 31 credits should include qualification-level courses (as listed in the section on Requirements for the Ph.D. degree) in at least three different fields of chemistry with at least three courses in one field; 11 credits of Chemistry 771 (Introduction to Research) and 2 credits of Chemistry 995 (Seminar). A maximum of 11 credits for graduate courses taken elsewhere for which a grade of "B" or better was earned is transferable toward partial fulfillment of this course work requirement, provided the student has earned a grade of B or better for a graduate course in the same area of chemistry at the University of Cincinnati. ("Elsewhere" may refer to other departments within the University of Cincinnati or from other colleges or universities.)
- Earn at least 14 graduate credits for research (Chem 971), and prepare a satisfactory thesis. Preparation of the thesis involves the following steps:
 - 1) Choosing a Research Advisor and thesis topic (see Section C).
 - 2) After selecting a Research Advisor, the student should inform the Graduate Program Director of the choice. After acceptance by the Research Advisor, the Graduate Program Director will notify the Department Head, who will appoint the student's Graduate Committee after consultation with the Research Advisor.

- 3) When the research work is completed, a formal thesis is prepared according to the regulations of the Office of Advanced Studies. The M.S. thesis must be submitted to members of the Graduate Committee at least one week prior to the Final Evaluation.
- All full-time graduate students must enroll in seminar each quarter they are in residence (consult the University Graduate Handbook for residence requirements). A maximum of two credits earned in seminar may be used to satisfy the above graduate course credit requirement.
 - All Graduate Assistants involved in teaching must enroll in Laboratory Teaching Practice (Chem. 999) for the Autumn Quarter of their first year of graduate study. Credits earned in this course cannot be used to satisfy the above graduate course credit requirement.
 - In accordance with present regulations of the Graduate School, a student must maintain a B (3.00) average in order to obtain the M.S. degree. In addition, at least 2/3 of the minimum graduate credits necessary for the degree must be B (3.00) or higher.
 - Final Evaluation: After all other requirements have been met, a student will appear before his/her Graduate Committee, and any members of the Graduate Faculty who may wish to attend, to defend his/her thesis and to answer general questions designed to test his/her competence in the field of his/her thesis and related fields.

The final, approved thesis shall be produced in the electronic form required by the Graduate School, and must be submitted to the Graduate School Office not later than 10 days before the Commencement for the quarter in which the degree will be granted. An additional copy of the thesis must be presented to the Research Advisor, in the Advisor's medium of choice. Degrees will be granted at the next regular Commencement.

Note: It is the student's responsibility to check the graduation section of the Graduate School web site, www.grad.uc.edu, for changes in the timing of submission of the thesis and application for graduation. These times change frequently and are not controlled by this Department, but they are absolute requirements.

Plan B (Non-thesis Option)

- Complete with a passing grade 45 credits of acceptable graduate course work, at least 25 of which shall be taken in the chemistry department, including at least three courses in each of two (2) different fields of chemistry. Additional course work shall be completed after consultation with the graduate program director regarding a suitable program of course work. (Chemistry 771--Introduction to Research and any other credits for research shall not be considered as suitable for course work in this non-thesis option.) A maximum of 22 credits for graduate courses taken elsewhere is transferable toward partial fulfillment of this course work under the conditions noted for Plan A, above.

Students formally admitted to the Ph.D. program by the department, admitted to candidacy for the Ph.D. [*vide infra*] and having accumulated sufficient research credits to reach the minimum of 45 graduate credits required for the degree may be granted a non-thesis Master's degree with the approval of the Graduate Program Director.

The Graduate Program Director becomes the student's Advisor upon the student's election of the non-thesis option (for students not in the Ph.D. program).

- All full-time graduate students must enroll in seminar each quarter they are in residence (consult the University Graduate Handbook for residence requirements). A maximum of two credits earned in seminar may be used to satisfy the above graduate course credit requirement.
- All Graduate Assistants involved in teaching must enroll in Laboratory Teaching Practice (Chem. 999) for the Autumn Quarter of their first year of graduate study. Credits earned in this course cannot be used to satisfy the above graduate course credit requirement.
- In accordance with present regulations of the Graduate School, a student must maintain a B (3.00) average in order to obtain the M.S. degree. In addition, at least 2/3 of the minimum graduate credits necessary for the degree must be B (3.00) or higher.
- Final Evaluation: After all other requirements have been met, a student will appear before his/her Graduate Committee appointed by the Department Head at the request of the student, and any members of the graduate faculty who may wish to attend, to answer general questions designed to test his/her competence in a specified area of chemistry. For students in the Ph.D. program, completing the candidacy requirements for the PhD degree fulfills this final evaluation requirement.

Requirements for the Ph.D. Degree

A) Qualification

All entering graduate students will be required to take the appropriate qualification courses (see below) during their first year of residency in the graduate program. The section "**Requirements for Satisfactory Completion of Qualifying Courses**" should be consulted for grade point average and other important considerations. At least one course in each quarter must be in the student's major area.

Autumn Quarter

Three of the courses listed below:

- Chem 601 - Biochemistry I (3 gr. cr.)
- Chem 721 - Advanced Physical Chemistry I (3 gr. cr.)
- Chem 741 - Advanced Analytical Chemistry I (3 gr. cr.)
- Chem 751 - Advanced Inorganic Chemistry I (3 gr. cr.)
- Chem 761 - Advanced Organic Chemistry I (3 gr. cr.)

All full-time graduate students must enroll in seminar (Chem 995) each quarter they are in residence (consult the University Graduate Handbook for residence requirements).

Winter Quarter

Two courses from the list below are to be taken in the Winter Quarter. These may be both in the student's major division or one in the major division and one in another division. Four credits of Chem 771, Introduction to Research, will also be taken. Alternatively, in consultation with the research Advisor and Graduate Program Director, a student may choose to take one course in his/her major division and seven credits of Chem 771. The Spring Quarter requirements must then be adjusted accordingly.

- Chem 602,
- Chem 604,
- Any 700-level course offered by the chemistry department during this quarter

See Section C of these Regulations for the procedure to be followed in selecting a Research Advisor. At the time of selection of the Research Advisor the student shall declare a major area. Qualification and Candidacy requirements shall be fulfilled in this area.

Spring Quarter

One of the graduate courses offered in the student's major and approved by the faculty of the major Division, and 7 graduate credits of Chem. 771. If one course and 7 credits of Chem 771 were taken during Winter quarter, two courses and 4 credits of Chem 771 will be taken in this quarter. A total of 11 credits of Chem 771 should have been taken by the end of Spring Quarter. A list of appropriate courses will be available to students prior to Spring Quarter registration from the Graduate Program Director.

Alternative Course Plans

Two alternative course plans are available specifically for those students planning to join a research group engaged in either Theoretical Chemistry or Polymer Chemistry. Students who select one of these options but do not subsequently pick a research project appropriate to the alternative option may be required to take additional courses in the chemistry department to fulfill the requirements listed above, at the discretion of the student's Ph.D. committee.

Theoretical Chemistry Option

Students selecting the Theoretical Chemistry option shall take the following required qualification sequence. Autumn Quarter: Chem 721, one additional chemistry qualification course, and a math or physics course approved by the Advisory Committee on Theoretical Chemistry. Winter Quarter: Chem 722 or 724, an approved math or physics course, and Chem 771 (Introduction to Research). Spring Quarter: Chem 723 and Chem 771. In the Spring Quarter, the third quarter of a math or physics sequence may be substituted for the equivalent credits of Chem 771; however, this course will not count toward qualification. If this substitution is made, the substituted credits of Chem 771 shall be taken during the subsequent summer quarter. The 11th credit of Chem 771 must be completed by the end of the Summer Quarter.

Polymer Chemistry Option

Students selecting the Polymer Chemistry option shall substitute a course approved by the Polymer Advisory Committee for one of the required Autumn Quarter qualification courses. The Winter Quarter schedule shall follow the scheme above. In the Spring Quarter of the first year, the student may substitute a polymer course for the equivalent credits of Introduction to Research (Chem. 771); however, such a polymer course will not count toward qualification. If this substitution is made, the substituted credits of Chem. 771 shall be taken during the subsequent Summer Quarter. The 11th credit of Chem 771 must be completed by the end of the Summer Quarter.

Research Courses

Chem 771 – Introduction to Research

This course consists of the research done by first year students to initiate their thesis or dissertation project. A written report and an oral seminar on research done for Chem 771 will be evaluated by the student's Ph.D. committee by the end of the quarter in which the student takes the 11th credit in the course. This is generally the Spring Quarter of the first year for full time graduate students. The evaluation will include questions from the committee to

determine whether the student has made satisfactory progress in initiating the research project, whether the student has an appropriate level of understanding of the project and the techniques used in the project, and whether the student has satisfactorily integrated material learned in the first year coursework into their thinking about the research. Failure to receive a grade of "P" (pass) in Chem 771 by the end of that quarter will result in ineligibility for the Ph.D. program *and* the Thesis M.S. program. This process may only be attempted once. The written report *must* be made available to the committee at least 7 calendar days prior to the oral seminar. This course will be graded SP/UP until the term in which the 11th credit is taken, at which time a P/F grade will be given.

Chem 971 – Research

This is a continuing course taken by graduate students actively engaged in research once the Chem 771 requirements have been fulfilled. This course is repeatable for an unlimited number of credits. This course will be graded SP/UP until the final term in which it is taken, at which time a standard letter or P/F grade will be given.

Requirements for Satisfactory Completion of Qualifying Courses

To complete satisfactorily the qualifying course requirements, a student must, by the start of Winter Quarter of the 2nd Year:

- Receive a grade of P (pass) in Chem 771, Introduction to Research. The grade for this course will be determined by the student's Ph.D. Committee, appointed by the Department Head as described in Section C.
- Pass the six (6) qualifying courses (other than Chem 771) with an average grade of B+ (3.33) or higher, with the following provisions:
 - Petitions to be exempt from specific qualification courses based upon courses completed elsewhere with a grade of B+ or better, will be considered if a qualification course has been taken in that same field of chemistry and a grade of B+ (3.33) or better was obtained. 'Elsewhere' is other departments at the University of Cincinnati, and other universities.

For example, a student entering in the Fall Quarter may receive the grades: Physical, B; Organic, B+; Analytical, A. This student would be eligible to petition out of the subsequent courses in Organic and Analytical having achieved grades of B+ or higher in these areas. However, since the student did not achieve a B+ or higher in Physical Chemistry, no courses taken elsewhere in this area can be petitioned for use in qualification. Grades obtained in courses taken elsewhere are not counted in the qualification average.

- Repeating a course in which a grade of B+ has been earned or for which exemption has been granted is not permitted as a way to obtain A grades (A, A-) needed to compensate for B or lower grades.
- As an alternative to taking a particular qualification course, an entering student may select the option of taking an exemption examination. A successful result on any of these examinations would make the student eligible to petition out of subsequent courses in that area of chemistry based upon courses successfully completed elsewhere. Successful completion of a course exemption examination will be equivalent to a B+ (3.33) grade in any qualifying course. This option is available only to a student who has not previously received a grade in the course. A course

exemption examination will be given in any qualifying course immediately prior to or at the beginning of each quarter in which the course is taught. A student must inform the appropriate Division Chair, in writing, at least one week prior to the start of the course, of his/her intention to take a course exemption examination.

- o University of Cincinnati undergraduates who continue into our graduate program may immediately petition out of any graduate qualification courses that they took as undergraduates. The grade awarded will be used to obtain the qualification average.

B) Graduate Credits and Post-Qualification Courses

A candidate for the Ph.D. degree must complete at least 135 graduate credits of course work and research, or 90 graduate credits if a Master's degree has been obtained prior to beginning the Ph.D. program at UC. All Ph.D. students who qualify by the end of their first year are required to take two courses beyond qualification to complete their coursework requirements. Students who have not qualified by the end of the first year are required to take three courses beyond qualification. Any graduate level course approved in writing by the student's committee and the Graduate Program Director that has not already been taken by the student in attempting qualification may be used without regard to what department or division teaches the course. Courses already taken at other Universities must also receive approval in writing by petition to the student's Ph.D. Committee. All approvals must be reported to the Graduate Program Director. These additional courses taken outside of Chemistry may occasionally include particularly valuable courses that are not available for graduate credit. Such inclusion requires prior approval of the student's Graduate Committee and the Chemistry Department faculty. In these cases, the student may be exempted from the requirement that all credits be at the graduate level. Any resulting graduate credit deficiency may be fulfilled by using research credits. The lowest grade acceptable for exemption by this mechanism will be a C (2.00).

C) Teaching Experience

Full time, first-year graduate students receiving financial support from the University are generally assigned positions as Teaching Assistants (TAs). All Graduate Assistants involved in teaching must enroll in Laboratory Teaching Practice (Chem 999) for the Autumn Quarter of their first year of service as a graduate teaching assistant. Students in subsequent years receiving TA assignments need not register for Chem 999.

D) Candidacy Examination

A student is eligible to begin the Candidacy Examination process when (1) (s)he has Qualified under section A) of Requirements for the PhD Degree, above, or (2) when (s)he has completed with an average of B+ (3.33) or better, the three qualification courses in the major area. A student is accepted as a Ph.D. candidate after (s)he has successfully completed the Candidacy Examination and has completed all required course work for the degree (exclusive of research). The formal acceptance into candidacy will come in a letter from the Vice Provost and Dean of the Graduate School.

The Candidacy Examination consists of two parts: (1) a Second Year Seminar that focuses on mastery^[TR8] of the literature related to the student's project and understanding of the context of the research and; (2) a Third Year Seminar that focuses on demonstrating the student's creativity and originality in executing the research project. Each of these seminars,

detailed below, will also provide a report on the progress made on the student's research project.

1) *Second Year Research Seminar.*

The purpose of the seminar is both to provide a progress report on the student's research to the student's Ph.D. Committee and to demonstrate the student's understanding of the context of his/her research project through mastery of the related literature.

Thus, the seminar will have a *strong emphasis on:*

- an in-depth knowledge of the literature that is relevant to the student's project;
- an in-depth understanding of the experimental techniques being used in the project;
- the progress to date on their dissertation research.

Students will include in the seminar a review of the pertinent literature, and should expect questions about this. The seminar will proceed in the sequence: student presentation, questions from the general audience, audience departs, then a private meeting and oral exam with the Committee.

This part of the Candidacy Examination is conducted by the student's Ph.D. Committee as a Divisional seminar during Winter Quarter of the 2nd Year. If the committee feels that the student has not demonstrated appropriate development for this point in her/his career, in terms of progress on their research, mastery of the literature in their field, and ability to present their work in a professional manner, the committee has two options depending on their view of the candidate's potential. The first is to remove the student from the Ph.D. program. The second is to advise the student of her/his shortcomings and give the student one quarter to work on the areas that need improvement, seeking additional guidance from the committee as needed, and improve to a satisfactory level. For students given an additional quarter by the committee, the requirement will be repeated during the following quarter, and if the goals of this requirement are not met, the student will be removed from the Ph.D. track.

This requirement must be finished and passed by the end of the Spring quarter of the second year or (s)he will be ineligible for the Ph.D. degree and further participation in the Candidacy Exams. University support will be extended for these students to the end of the Summer Term, if requested and a position is available.

2) *Third Year Divisional Dissertation Topic Seminar*

The purpose of this seminar is to provide a progress report on the student's research to the Committee and to demonstrate creative thinking and intellectual initiative on the part of the student in developing independent ideas within their research.

Each student in the Ph.D. program will present the Seminar describing the background and goals of the research undertaken and the progress achieved towards these goals. It should also express in some detail the plan for the remaining work. This seminar will place an emphasis on the creative and original ideas developed and/or proposed by the student on the implementation and direction of the research project. The student must demonstrate that (s)he has made a significant, independent, intellectual contribution to the project.

The entire seminar will proceed in the sequence: student presentation, questions from the general audience, audience departs, private meeting and oral exam with the Ph.D. Committee. The seminar examination will be scheduled as a Divisional Seminar during Autumn Quarter of the Third Year. If the committee feels that the student has not demonstrated appropriate

development for this point in her/his career, in terms of progress on their research, original thinking and intellectual contributions to the project, and ability to present their work in a professional manner, the committee has two options depending on their view of the candidate's potential. The first is to remove the student from the Ph.D. program. The second is to advise the student of her/his shortcomings and give the student one quarter to work on the areas that need improvement, seeking additional guidance from the committee as needed, and improve to a satisfactory level. For students given an additional quarter by the committee, the requirement will be repeated during the following quarter, and if the goals of this requirement are not met, the student will be removed from the Ph.D. track.

A student must successfully pass this requirement of the Candidacy Examination by the end of the Winter Quarter of the third year in residence or (s)he will be deemed to have failed the Candidacy Examination and to be ineligible for the Ph.D. degree. University support will be extended for these students to the end of the Summer Term, if requested and available.

Post-candidacy Evaluations

After a student has successfully completed the Ph.D. Candidacy Examination and all required coursework, and thereby entered Candidacy, the University Graduate Regulations require that Candidates be evaluated at least annually to determine their fitness to continue in the program. The Department's evaluation takes the form of research seminars similar to the Third Year Divisional Dissertation Topic Seminar. Thus, the seminar proceeds in the sequence: student presentation, questions from the general audience, audience departs, private meeting and discussion with the PhD Committee. The Committee will then determine whether the candidate has demonstrated satisfactory progress to be allowed to continue toward the Ph.D.

As for the Third Year Seminar, the student will be expected to describe the background and goals of the research undertaken and the progress achieved towards these goals. Most importantly, a detailed plan for the remaining work should be presented and discussed.

The post-Candidacy seminars must take place within one year after entering Candidacy, and within one year annually thereafter. It is recommended that it be given as early in each year as the progress of the research permits. A student must successfully pass this requirement by the end of each year of residence after the third year or (s)he will be deemed to have failed the Ph.D. program and to be ineligible for the Ph.D. degree. University support will be extended for these students to the end of the Summer Term, if requested and available.

E) Dissertation and Public Defense

Once the student has successfully entered Candidacy, as described above, and completed a research project that the student and his/her Advisor agree will form the basis for an acceptable dissertation on a topic related to his/her major field of study, the student will take the following steps toward producing and defending a dissertation. The dissertation shall embody the results of original research, give evidence of high scholarship, and constitute a publishable contribution to knowledge.

1) When work on a chosen topic is nearing completion and before the dissertation is prepared, the student, in consultation with his/her Research Advisor, shall prepare a detailed summary (including pertinent experimental data) of his/her work. The summary shall be delivered to all members of the student's Ph.D. Committee. The student may then schedule a pre-dissertation presentation (the 'closed defense') before his/her Ph.D. committee, which

shall take place no less than one week after the Committee has received the summary, and no less than one academic quarter before the anticipated Public Defense.

2) After the committee has approved the pre-dissertation presentation and work on the chosen topic has been completed, the student shall then prepare a complete draft of the dissertation. When this draft is completed to the satisfaction of the student and his/her Advisor, copies shall be distributed to all members of the student's graduate committee. Within two weeks each committee member shall either (a) approve the dissertation or (b) consult with the student and his/her Advisor regarding revisions. After the dissertation has been approved in form and content by all members of the student's committee, the student may begin the process of scheduling the Public Defense [*vide infra*].

3) A final draft of the dissertation shall be produced in the electronic form required by the Graduate School. The student should obtain a graduation packet from the Office of the Vice Provost and Dean of the Graduate School. This contains detailed instructions for the graduation process, including all necessary forms, relevant deadlines, and the rules that govern the submission of the dissertation. These will include the form of submission, fees, and timelines. An additional copy of the dissertation must be presented to each Research Advisor in the Advisor's medium of choice.

4) When all other requirements are fulfilled, the student will present a Public Defense of his/her dissertation before his/her Committee and all others who wish to attend. Consult the University Graduate Handbook for further details on the University's requirements regarding the Public Defense.

It is highly recommended that after a student is admitted to candidacy, (s)he complete all degree requirements (including writing and obtaining final approval of the dissertation) prior to leaving the Department, i.e., discontinuing full-time status. In unusual circumstances, a student may leave the Department before completing all requirements. In this case, the student shall either obtain a "Departmental leave of absence" or be evaluated periodically by the Division and Committee. The Department recognizes that a student may encounter personal circumstances that require interruption of his/her degree program. In such cases, the student has the right to petition the Department Head for a "Departmental Leave of Absence." After conferring with the Division(s) concerned, the Department Head may grant such a leave that would normally encompass (a) a waiver of any or all Departmental regulations for a specific period of time, and (b) an assurance to the student that Departmental degree requirements already fulfilled by the student will be accepted upon return.

SECTION C – Research Advisor Selection and Committees

Selection of a Research Problem and Advisor

Working hard at something in which one is not really interested is a fate to be avoided if possible. For this reason the student should be sure that his/her choice of research problem is determined, insofar as possible, by his/her fundamental interest in the subject. Since the student will be associated with the Research Advisor for a long period of arduous work this choice must be given serious consideration. During the first quarter of graduate work, beginning graduate students are advised to acquaint themselves with all faculty members of the Chemistry Department and to ascertain their research interests. In addition to the required steps described below, this can be accomplished by visiting the faculty web pages at

<http://www.che.uc.edu>, attending seminars presented by members of the various research groups, and talking to the graduate students in the research groups.

Ideally, the research problem should originate with the student. In practice, however, professors ordinarily suggest possible problems and the student selects one of them. If any student has in mind a problem on which (s)he would like to work, (s)he should discuss it with the faculty member to whose interest it is most closely related. If the problem is judged to be sufficiently well defined, and if the faculty member is willing to direct it and is accepting new students, the problem may be worked on for a thesis or dissertation. Even if (s)he has his/her own problem in mind, or has come with the expectation of working with a particular professor, the student is still required to go through all of the steps described below before making his/her decision.

Procedure

1) Each faculty member who is accepting new graduate students will give a brief presentation about their research group and available research problems to the first year students. These presentations are scheduled during the first part of the Autumn Quarter. Attendance is mandatory for all first year graduate students planning to undertake research (that is, all thesis-track M.S. and all Ph.D. students). A student whose TA or course schedule interferes with attendance should discuss options with the Graduate Program Director before the first of these faculty presentations.

2) Once the presentations in 1) have concluded, each first year student must confer with a minimum of three faculty members to discuss the available research problems in their group. This requirement is complied with by having the faculty members, after the consultation, sign the sheet appended to these regulations. Only faculty members who have been interviewed by the student may be requested as potential advisors in the selection process.

3) When the necessary conferences have been held, the student will select at least three preferred Research Advisors of the faculty interviewed, list them in order of preference on the sheet, and return it to the Graduate Program Director. This must be completed no later than the beginning of Finals Week of the first quarter of residence (generally the Autumn Quarter).

4) The Graduate Program Director will determine whether the faculty members are able and willing to accept the student. If so, the arrangements will be completed, and the student, the student's new Research Advisor, and all faculty who have been consulted will be informed of the decision so that there may be no uncertainty about how matters stand. When the process of selecting the Research Advisor is completed the student shall declare a major area. It is expected that the selection process will be completed by the first Friday of classes of the second quarter of residence (generally the Winter Quarter). *Failure to be admitted into a research group is grounds for removal from the Ph.D. program.*

Students who enter with the MS degree are expected to follow this procedure. When, however, a student continues from an MS problem to a Ph.D. problem (upon approval by the Graduate Admissions Committee) without a change of Research Advisor, no consultation with other faculty members is required.

Changing Research Advisor

A student contemplating changing Research Advisor should not pursue that change without first consulting with the Department Head, who, with the Graduate Program Director, will determine the willingness and ability of the intended new Research Advisor to accept the student. Only after that determination has been made may the student proceed to execute the change in Research Advisor, and must follow the procedure described in the appended form.[MJB9]

Graduate Committees

M.S. Degrees

All Committees for students seeking the M.S. degree shall be appointed by the Department Head and shall consist of at least three full-time members of the Chemistry Department faculty. For candidates for thesis-M.S. degrees, the Advisor shall chair the Committee. If non-members of the Department are appointed, the majority of members shall still be from the Department of Chemistry. The Committee shall administer the final evaluation and, if appropriate, shall rule on approval of the thesis.

Ph.D. Degrees

Committees for Ph.D. students shall be appointed by the Department Head upon recommendation of the student's Advisor(s). [MJB10] The Ph.D. Committee shall consist of a minimum of three full-time members of the Faculty, two of whom shall be members of the student's major division, and at least one other from outside the student's major area (the "outside member") who is not one of the student's research advisors. If faculty members of other departments are appointed, the Committee shall still have the majority of members from the Chemistry Department. Once the student has attained candidacy, the student's Ph.D. Committee (new or continuing) will be appointed formally by the Vice Provost and Dean of the Graduate School, upon recommendation of the Department Head. The Chair of the Ph.D. Committee is the student's dissertation advisor. Adding a member from outside the Department (including outside the University) that is involved in the student's research or provides relevant expertise is encouraged.

SECTION D – Limitations on Eligibility and Support

Continuing Financial Support and Eligibility

There will be times when determination of a student's satisfactory progress will be made and thus eligibility to continue in the degree program and/or receive financial support. (Students entering the program other than at the beginning of the Autumn Quarter shall count their (full-time) residence from the beginning of the first Autumn Quarter in attendance.) The rules below apply to full-time students in the Ph.D. program. M.S. students are not generally offered ongoing financial support, but may receive support at the discretion of the Graduate Program Director if the need to fill a TA position should arise, or at the discretion of the student's Advisor if grant support is available. Continuing financial aid is always dependent upon satisfactory discharge of contractual obligations[TR11] in both teaching and research.

- At the end of the Winter Quarter of a student's first year in the graduate program, support for the subsequent academic year from University funds will be offered only if qualification in at least four (4) courses has been achieved. Students having achieved

qualification in only three (3) courses may be offered conditional support for the subsequent academic year. (The conditional requirement being the achievement of qualification in 4 out of 6 qualification courses by the end of the Spring Quarter.) A student in the Ph.D. program who fails to qualify for support based on this rule automatically becomes ineligible for the Ph.D. program.

- At the start of the Autumn Quarter of a student's second year of residence, his/her eligibility for continuation in the Ph.D. program requires qualification in 4 out of 6 qualification courses and satisfactory completion of Chem 771.
- At the end of the Winter Quarter of the second year of residence, a student in the Ph.D. program should have completed qualification in order to be eligible for continued University support for subsequent years.
- At the end of the second year of residence a student who has failed to qualify shall be ineligible for further work in the Ph.D. program and further University financial support.
- A student must successfully pass all parts of the Candidacy Examination within the required time period to remain eligible for the Ph.D. degree.
- A student who has reached candidacy must pass each annual evaluation to remain eligible for the Ph.D. program and financial support.
- If a student's Committee feels that his/her ability to complete an adequate dissertation should be formally evaluated, a meeting of the Committee and the student will be scheduled for such purpose. At that meeting the student will present a report on research already done and an outline of that anticipated. The Committee shall then make a recommendation to the faculty for its action, which may include removing the student from the Ph.D. program.^[MJB12]
- University Financial Support will not be offered to Ph.D. students beyond the fifth year of residence^[TR13].

Note: A student declared ineligible for the Ph.D. program at any time may complete a thesis-M.S. program but will not be considered for readmission to the Ph.D. program.

Time limits

There is no formal candidacy for the Master's degree (M.S.); a student becomes a candidate for the M.S. upon matriculation into the M.S. of the Department. However, to maintain status as a graduate student and be eligible for the M.S., students must register for one credit each academic year during the Autumn Quarter. The requirements for the M.S., outlined above, represent a minimum of one academic year's worth of full-time graduate study. A student following either Plan A or B toward the M.S. in Chemistry must complete all requirements no later than five years from the date of matriculation into the M.S. program (the Vice Provost and Dean of the Graduate School can grant extensions under extenuating circumstances). Students intending to receive the M.S. from the Department of Chemistry are responsible for ensuring that all of the requirements have been met, and that the procedures of the Graduate Division have been carried out properly and on time. The dates by which application for graduation must be filed are available in the main office of the Department of Chemistry. Students should then pick up a graduation packet from the Office of the Vice Provost and

Dean of the Graduate, which contains detailed instructions for the graduation process, as well as all necessary forms and relevant deadlines.

The doctoral degree will be granted for no less than the equivalent of three years of full-time graduate study. Prior to admission to candidacy, all doctoral students must remain enrolled for at least 10 graduate credits during each of three quarters within a span of five consecutive quarters, including the summer quarter. As noted above, a period of seven months must elapse between admission to candidacy and receipt of the Ph.D. degree. After admission into candidacy for the doctoral degree, registration and fee payment for at least one quarter credit in the Autumn quarter each year is required if candidacy is not to lapse. Candidacy for the doctoral degree automatically terminates after four consecutive calendar years, although candidates may petition the Vice Provost and Dean of the Graduate School through the Department for an extension of candidacy prior to its expiration, or for reinstatement if candidacy has expired. If reinstatement is approved, the student may be required to retake and pass the formal candidacy requirement of the Department. Petitions shall be submitted on the approved form.

SECTION E – Special Rules and Provisions

The Department of Chemistry joins with the University of Cincinnati in reaffirming its policy that discrimination on the basis of race, religion, national origin, sex, sex orientation, handicap, or age will not be practiced in any of its activities. Complaints involving abridgment of this policy should be addressed to the Affirmative Action Coordinator.

Students, once enrolled, have the right to review their educational records, except as excluded by law, including the student file maintained in the Department office. In order to gain a review of these records, along with appropriate explanation or interpretation, the student should first address the Department Head. Should the student encounter any difficulty in obtaining the kind of review requested, the question should be referred to the Dean of the College of Arts and Sciences, and/or to the Office of the Registrar. The student file in the Department office will be treated with confidentiality, so that the only access afforded university faculty or staff is on a need-to-know basis.

The University of Cincinnati has well-defined grievance procedures for resolving specific problems and issues. Students are referred to the University Graduate Handbook, which is available on the Graduate School web site, www.grad.uc.edu.

Academic dishonesty in any form is a serious offense and cannot be tolerated in the Chemistry Department, or the academic community. Dishonesty in any form, including cheating, plagiarism, deception of effort, falsification of data or results, or unauthorized assistance may result in a failing grade in a course and/or suspension or dismissal from the Graduate Division.

A student may be dismissed from the Graduate Program of the Department of Chemistry by action of the Faculty for professional malfeasance, or an academic record that does not meet the standards of the M.S. program.

It is Department policy, consistent with the policies of most funding agencies including federal agencies, that original research materials and documentation, (research notebooks, spectra, electronic files, etc.) remain with the Advisor when a student leaves that group. The student may make copies of documentation for his/her records.

Revision: September 10, 2010

**DEPARTMENT OF CHEMISTRY
CHANGE OF ADVISOR CLEARANCE FORM**

Name _____ Date _____

This form must be completed before a student is considered to have officially changed research advisors.

a) **Consultation with the Department Head**

Department Head

b) **Student Certification**

I understand that any funding which was available through my original research group stays with that group and does not follow me. I further understand that the time frame for eligibility for Departmental funding (5 years for a PhD or 2 years for an MS) does not increase due to changing my research advisor.

Graduate Student

c) **Operations Office**

1. All laboratory and office keys have been returned
2. All other borrowed equipment has been returned
3. Xerox card has been returned
4. Satellite card has been returned
5. Stockroom charge cards have been returned

Manager of Service

d) **Stockroom**

1. All tools have been returned
2. All other borrowed equipment has been returned

Storekeeper

e) **Research Lab**

1. All other borrowed equipment has been returned to the original advisor
2. Original research materials and documentation such as research notebooks, spectra etc., have been turned over to the original advisor.
3. Work areas have been cleaned, glassware washed etc.
4. Any hazardous materials have been either turned over to the original advisor or properly disposed of.

Original Research Advisor

f) **Chemistry Graduate Program Director**

Graduate Program Director

Request for Permission to take a Course Outside of the Chemistry Department

This form is only required for courses which are NOT part of the normal curriculum.

I _____ request that I be allowed to take
the following course:

_____	_____	_____
Department	Number	Title

Reason:

Approval by Dissertation Advisor: YES NO

Signature/Date: _____

Approval by Graduate Program Director: YES NO

Signature/Date: _____

Appointment of a Dissertation Committee Alternate

Because of travel schedules it is impossible for the PhD committee of _____
_____ to meet in a timely fashion. As a result Professor _____ has
been appointed as an alternate for Professor _____.

All committee members are in agreement with this change.

Date _____

Student _____

Chair _____

Missing Member _____

Alternate Member _____

Other Member _____

Dissertation Defense Schedule

GENERAL INFORMATION:

STUDENT'S NAME

DATE

DISSERTATION TITLE:

DEFENSE INFORMATION:

COMMITTEE NAMES:

LOCATION

CHAIR

DATE

TIME

PREVIOUS DEGREES (EXCLUDING Associate Degrees)

THIS FORM NEEDS TO BE DELIVERED TO THE MAIN CHEMISTRY OFFICE TWO WEEKS BEFORE YOUR SCHEDULED OPEN TO GET THE POSTING DONE IN TIME.

Authorization to Schedule Public Defense of Dissertation

Candidate's Name _____

As a member of the above named candidate's committee, I have received and read a copy of the candidate's dissertation and approve it in form and content. There appear to be no *major* issues remaining to be addressed in the dissertation before it will be suitable for submission to the University. ***This form does NOT constitute final approval of the dissertation; it only provides authorization to schedule the Public Defense.***

Committee Chair (Dissertation Advisor) Signature _____ Date _____

Committee Member Signature _____ Date _____

Committee Member Signature _____ Date _____

Committee Member Signature (*if committee has four members*) _____ Date _____

Based on the recommendation of the candidate's committee, indicated above, the candidate is authorized to schedule the Public Defense of the dissertation.

Graduate Program Director Signature _____ Date _____

Results of the Closed Defense of Dissertation

Name _____

Date _____

Committee Members _____

Defense was _____ Successful _____ Unsuccessful

Special Instructions to the Student

3rd Year Dissertation Topic Seminar

STUDENT

TITLE

Date of Defense

Result of Presentation

Pass _____ Fail _____

Signature of Chair

Faculty Present

Evaluation Criteria

1. Depth/breadth of background preparation for seminar

2. Progress on dissertation research

3. Depth/breadth of understanding of dissertation research

4. Extent of plans for future for dissertation research

5. Extent and quality of independent intellectual contribution to the implementation of the project so far.

6. Originality and creativity of independent ideas on the direction of the project.

7. Quality of oral presentation (e.g., organization, clarity, graphics, appropriateness of literature citation, poise, length, balance)

8. Response to questions (e.g., accuracy, appropriateness, whether convincing, defensive/combatative, knowledgeable)

Areas for Improvement:

Additional Comments:

2nd Year Research Seminar

STUDENT _____

TITLE _____

Date of Defense _____

Result of Presentation

Pass _____ Fail _____

Signature of Chair _____

Faculty Present _____

Evaluation Criteria

1. **Thoroughness of literature review**

2. **Ability to relate current thesis research to previous work in this and related fields**

3. **Appropriate context for research direction**

4. Progress on dissertation research

5. Depth/breadth of understanding

6. Extent of plans for future

7. Quality of oral presentation (e.g., organization, clarity, graphics, appropriateness of literature citation, poise, length, balance)

8. Response to questions (e.g., accuracy, appropriateness, whether convincing, defensive/combatative, knowledgeable)

Areas for improvement:

Additional comments:

Chemistry 771 Presentation

STUDENT _____

TITLE _____

Date of Defense _____

Result of Presentation

Pass _____ Fail _____

Signature of Chair _____

Faculty Present _____

Evaluation Criteria

1. Depth/breadth of background preparation

2. Progress on dissertation research

3. Depth/breadth of understanding

4. Extent of plans for future

5. Quality of oral presentation (e.g., organization, clarity, graphics, appropriateness of literature citation, poise, length, balance)

6. Response to questions (e.g., accuracy, appropriateness, whether convincing, defensive/combative, knowledgeable)

7. Quality of written presentation (e.g., organization, clarity, focus, detail, persuasive)

Areas for improvement:

Additional comments:

**UNIVERSITY OF CINCINNATI
DEPARTMENT OF CHEMISTRY
Report of Selection of Research Advisor**

_____ (Student Name)

Faculty Interviews: All students must interview a minimum of three faculty members.

	Signature of Faculty Member	Date of Interview
1	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____

On the basis of these interviews I request permission to perform research towards a

_____ PhD / _____ MS degree in the research group of

1st Choice _____

2nd Choice _____

3rd Choice _____

_____ Date _____
Signature of Graduate Program Director

_____ Date _____
Signature of Accepting Faculty Member