

**Procedures for Graduate Students in the Chemistry Department at the  
University of Nebraska-Lincoln**

**Fully updated 9/18/2003 by Gerard S. Harbison.**

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## A. Introduction

The rules and regulations pertaining to all UNL graduate students are set out in the Graduate College Bulletin for Graduate Studies for the University of Nebraska Lincoln. It is the responsibility of each student to be familiar with the information presented in that Bulletin. The Graduate College operates within guidelines set out by the Commission on Institutions of Higher Education, North Central Association. In the section entitled "Criteria for Admission and Selection" the following statement is found:

"Students admitted to a graduate program should be expected to perform academically at a level well above that required for the average undergraduate. The institution should devise and publicize its criteria for selecting graduate students so that it is clear that admission is offered only to students who have demonstrated superior intellectual ability at each successive level, who are properly prepared, and who are seriously motivated in the direction of the advanced program to which they seek admission. A distinction between admission to graduate school and admission to candidacy in a particular graduate program should be made, based on explicit and clearly defined scholarship standards."

The Chemistry Department Graduate Committee is made up of a faculty member from each of the five divisions (from which group the Chair of the Committee is selected) and the Chair of the Department or his/her designee. The Departmental Graduate Committee represents and makes recommendations to the Graduate College on all matters pertaining to graduate students in Chemistry. The following handbook details certain procedures and criteria relevant to achieving admission to candidacy in the Chemistry graduate program and successful completion of an advanced degree. The rules and regulations are set out in accordance with the Graduate College Bulletin for Graduate Studies. The responsibility for following all policies and meeting all requirements and deadlines for their graduate program rests with the student.<sup>1</sup>

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<sup>1</sup> Footnotes in the text are meant to be explanatory and to reflect current policy and interpretations. The symbol, "#GSB", denotes sections taken from the "Graduate Studies Bulletin".

## B. Beginning Graduate Course Work

Incoming graduate students will take graduate level entrance exams in analytical, organic, and physical chemistry, and exams in either (or both) biochemistry or inorganic chemistry. Full-time graduate students are required to enroll in 12 credit hours per semester during the academic year and 4 credits per five-week summer session until the student completes the Comprehensive Examination Requirement and is admitted to candidacy for the Ph.D. degree.<sup>2</sup>

First year students are expected to take three of the following three-credit introductory graduate courses in the fall semester. At least one must be either Chemistry 824 (Analytical) or Chemistry 885 (Physical)<sup>3</sup>, at least one must be Chemistry 831 (Biochemistry), Chemistry 845 (Inorganic), or Chemistry 855 (Organic). One of these required courses may be waived by the Graduate Committee, provided that: (1) the student's scores above the 85th percentile (nationally) on the entrance exam in an area other than the student's major area; and (2) the student can productively use the three credit hours for another purpose; for example, by taking a more advanced course in the student's major area or carrying out three credits of research under Chemistry 898. First year students will also register for Chemistry Colloquium (Chem 810, 1

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<sup>2</sup> The Graduate College will not allow a student holding a Teaching Assistantship to register for more than 12 hrs. per semester. If a student has too many hours in his/her program to register for 898A or 810 in a given semester, he/she should attend the course and register for that course as soon as possible to receive credit. Attendance will be recorded in the Department to ensure that proper credit can be assigned.

<sup>3</sup> Other courses within the same subject area may be substituted with the explicit permission of the graduate committee.

credit)<sup>4</sup>, a Chemistry Divisional Seminar appropriate to their interests (1 credit),<sup>5</sup> and a survey of research ongoing in the Department (Chem 898A, 1 credit)<sup>6,7</sup>.

### **C. Grade Point Average Categories and Classification**

Upon entering the Department for graduate studies, a student is provisionally classified as either Ph.D. Nominee or M.S.-I Nominee according to his or her qualifications and degree objective. The Graduate Committee reviews these classifications at least twice a year; in January and in May. A change in classification may be made depending upon the student's cumulative graduate coursework grade point average (GPA)<sup>8</sup>, progress toward completion of the approved Program of Study, Supervisory Committee recommendation, and change in degree objective. The first serious Graduate Committee review is made after completion of the first semester graduate courses. The status of a graduate student is assessed based upon the accumulated GPA in graduate level courses. Students usually fall within one of the following categories.

*Ph.D. Nominee:* Students who have attained a GPA of 3.00 or greater.

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<sup>4</sup> Four credit hours (four semesters of attendance) must be earned in Chem 810 (Chemistry Colloquium) for the M.S. and Ph.D. degrees. Attendance at all but 2 departmental colloquia in a given semester is required for a passing grade in 1 hour of credit. This requirement is to be fulfilled as rapidly as possible in a student's graduate career.

<sup>5</sup> Four credit hours (four semesters of attendance) must be earned in an appropriate division seminar for the M.S. and Ph.D. degrees. The precise expectations vary among the divisions and students should discuss this with the appropriate Graduate Committee member and/or the divisional seminar coordinator. This requirement should be fulfilled as rapidly as possible in a student's graduate career.

<sup>6</sup> All entering graduate students (this includes both M.S.-I and Ph.D. students, and students who entered the previous Spring whether or not they have chosen a research director) will register for 1 hour of 898A (offered only in the Fall semester). Research presentations are given by faculty interested in adding graduate students to their programs. Attendance is required at all of the research presentations. If a presentation is missed, it must be made up in following years to receive a minimum passing grade in Chem 898A.

<sup>7</sup> International students are required by the University to take an English Placement Exam upon arrival at UNL. (Note that this is separate from the requirements for the International Teaching Assistant Institute, *vide infra*) Based on their score on the Placement Exam, they may be required to complete one or more English courses. In that event, students are expected to both: (1) enroll and complete the required English course; and (2) attend, but not enroll in, Chemistry Colloquium (Chem 810, 1 credit), a Chemistry Divisional Seminar appropriate to their interests (1 credit), and Chem 898A (1 credit). Having completed the requirements for these latter three courses in the Fall semester, the student can officially enroll and receive the appropriate credit at a later date.

<sup>8</sup> When the Graduate Committee computes the cumulative GPA of the graduate students for the purpose of classification, only bona fide graduate level lecture courses are included in the calculations. In the event that a course is taken a second time to improve the grade, neither the first grade, nor the hours for that course are used in computing the cumulative GPA; this, irrespective of the grade earned in the second try. See also section T.

*M.S.-I Nominee:* Students who have attained a GPA of 2.50 or greater.

*Terminal:* Cumulative GPA less than 2.5, or with a grade of B- or less in a course co-listed with a 400 (undergraduate-level) counterpart, or a grade of C- or less in a graduate-level course with no 400-level co-listing. Probable classification: termination.

For classification purposes, only core courses or chemistry graduate courses with formal written examinations will be automatically included in the GPA computation. The grading system of the University of Nebraska is: A+/A = 4.00, A- = 3.67, B+ = 3.33, B = 3.00, B- = 2.67, C+ = 2.33, C = 2.00, C- = 1.67, D+ = 1.33, D = 1.00, D- = 0.67 and F = 0.00. Under this system, grades of B- or lower are unacceptable for 800-level graduate courses that have 400-level co-listing and grades of C- or lower are unacceptable for all other graduate level courses.

Borderline cases may be left provisionally classified pending the completion of additional graduate level coursework. It is important that students left provisionally classified seek specific course recommendations from the Graduate Committee before proceeding in the program. A student classified terminal is not expected to continue in the graduate program and is ineligible for further assistantship support.

In exceptional cases, a student designated M.S.-I Nominee may raise his/her cumulative graduate coursework GPA above 3.00 and the Graduate Committee may decide to reclassify the student to Ph.D. Nominee. However, in most cases, a student designated M.S.-I Nominee must complete the M.S.-I requirements and thesis defense before petitioning for reclassification to Ph.D. Nominee (see Section M.3).

Students classified, or provisionally classified, Ph.D. Nominee or M.S.-I Nominee after their first semester must have their second semester course registration approved by the Graduate Committee, or if appropriate, their research adviser. Their registration will include appropriate advanced graduate courses, Chemistry Colloquium (Chem 810, 1 credit), a Divisional Seminar (1 credit), and an appropriate number of research hours (usually, Chem 898). Note that full-time graduate students are required to enroll in 12 credit hours per semester during the academic year

and 4 credits per five-week summer session. This 12 credit hour registration requirement continues until the student completes the appropriate Comprehensive Examination Requirement and is admitted to candidacy for the Ph.D. degree (see section F). Registering for Special Problems (Chem. 898) with a particular faculty member places the student under no obligation to do the advanced degree with that same faculty member. The student should discuss available research projects with several professors who are working in areas of interest to the student and select a research adviser by March 1, unless explicitly exempted from this deadline in writing by the Graduate Committee. The student completes the selection of a research adviser by following the appropriate guidelines for the Ph.D. Nominee or M.S.-I Nominee (outlined below) and by filing Form 1 or 8 with the Graduate Committee Chair.

In the event of an admission of a student with a MS degree from a US chemistry department of equal or higher rank than UNL's chemistry department, the graduate committee may opt to classify the student as Ph.D. upon admission, and to proceed with the appointment of a supervisory committee as soon as the student has chosen an advisor. The supervisory committee may transfer credit for any graduate course taken at the MS institution in which a grade of B or better was earned. The distribution requirement may then be met in whole or in part from these transferred courses.

#### **D. The Ph.D. Degree Nominee: Research Adviser and Supervisory Committee**

**1. Choosing a Research Adviser.** The Ph.D. degree is awarded largely on the basis of achievement of original research. After completing Chem. 898A graduate students are free to interview with potential research advisers. The nominee should choose a research adviser after discussing available research projects with several professors who are working in areas of interest to the student, regardless of division. A student may select to work on a joint or collaborative project in which case more than one research adviser would be appropriate. The research program is a cooperative effort between the student and the research adviser with the latter having overall responsibility for the direction and course of the student's research program. There is a practical limit to the number of students who can be accepted into a faculty member's

research group at a given time. Therefore, a student may have to conduct thesis research under the direction of a faculty member other than the student's initial choice.

**2. Forming a Supervisory Committee.** After selecting a research adviser, the student should consult with the adviser for the names of at least four faculty members who would be suitable to serve on the student's Supervisory Committee. At least four Supervisory Committee members must be Graduate Faculty Fellows. The research adviser will chair the Committee<sup>9</sup> and at least one Supervisory Committee member must be from a division other than that of the chair. In the case that the chair is not from the division in which the student has elected to do research, at least two other members of the Supervisory Committee must be from the division in which the student has elected to do research. The Supervisory Committee must include one Graduate Faculty Fellow from outside the Chemistry Department<sup>10</sup>. A student without a Supervisory Committee by the end of the semester following Ph.D. Nominee classification shall be assigned a Supervisory Committee by the Graduate Committee.

The student, after obtaining the consent of the faculty members to serve on the Supervisory Committee, submits their names to the Graduate Committee Chair for approval using form 2 (see Appendix). Following approval by the Graduate Committee, the names of the Committee members are then sent to the Graduate College for appointment by the Graduate Dean.

# GSB Upon recommendation of the departmental or area Graduate Committee, the Dean for Graduate Studies appoints, for each student, a Supervisory Committee of at least four Graduate Faculty Fellows. (All professors on the Supervisory Committee must be Members or Fellows of the Graduate Faculty). At least one Graduate Faculty Fellow external to the academic department or area in which the doctorate is to be granted must be included on the committee responsible for supervising the student's doctoral program of studies.

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<sup>9</sup> The prospective adviser must be a Graduate Faculty Fellow or Member, however, whether the research adviser is a Graduate Faculty Member or Fellow is of no practical consequence to the graduate student. In those cases where the chosen research director is a Graduate Faculty Member, one of the Graduate Faculty Fellow participants on the Supervisory Committee will be assigned co-chair of the committee.

<sup>10</sup> The Supervisory Committee Member from outside the Chemistry Department must be a Graduate Faculty Fellow and his/her primary role is to represent the Graduate College.

**3. Constructing a Program of Study.** The purpose of the Supervisory Committee is to advise and guide the student towards the Ph.D. degree and to ensure that satisfactory progress is being made at all times<sup>11</sup>. The Graduate College and the Department of Chemistry expect the Supervisory Committee to meet within three weeks following its appointment. The purpose of this first meeting is to discuss and approve a complete Program of Studies for the student. In advance of the first Supervisory Committee meeting, and in consultation with his/her research adviser, the student is to prepare five copies of a tentative Program of Study using Form 3 (see Appendix).

# GSB: Within three weeks of its appointment, the Supervisory Committee will meet to approve the student's program of studies and will forward a copy to the Office of Graduate Studies. Either then or later there will be a discussion of a dissertation topic or a topic for a field investigation. Any subsequent change in the program or in the dissertation or field investigation topic must be approved by the Supervisory Committee and the action reported to the Office of Graduate Studies.

The full Supervisory Committee will consider the student's prior academic and practical training, including such aspects as UNL and prior coursework training, the results of GRE and UNL entrance examinations, and the intended area of the thesis research. Graduate students are expected to take a minimum of 18 credit hours of bona fide graduate level course work; however, the Supervisory Committee has the responsibility to develop an appropriate Program of Study and many require a student to take more than this minimum number of courses. The minimum amount of graduate credit comprising the Program of Study is 90 semester hours, including a dissertation research hours (Chem. 999). No fewer than 45 semester hours must be completed at the University of Nebraska-Lincoln. Graduate College rules do not allow a course to be included on the program of studies in which the student has been given a grade of C if that course is an 800 level course with a corresponding 400 level course. At this first committee meeting the Supervisory Committee will revise the proposed Program of Study by: (1)

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<sup>11</sup> Note that the Graduate Committee, not the Supervisory Committee, has the ultimate authority to set various deadlines and approve examinations for a graduate student. (see Minutes Graduate Committee, Sept. 2, 1981).

recommending the transfer of any relevant graduate level coursework (see section G); (2) listing relevant UNL graduate level courses that must be completed prior to graduation; and (3) approving the general area of the thesis research<sup>12</sup>; and (4) designating two members to serve as thesis Readers<sup>13</sup>. The student is responsible for submitting completed copies of the Program of Study (Form 3), as approved by the Supervisory Committee and signed by the Supervisory Committee Chair or Co-Chairs, to both the Graduate Committee Chair and the Graduate College. Changes in the membership of the Supervisory Committee must be approved by the Graduate Committee Chair or his/her designee and confirmed by the Graduate College<sup>14</sup>.

## **E. Comprehensive Examination (Ph.D. Nominee)**

The student must pass the Comprehensive Examination before filing with the Graduate College for admission to candidacy for the Ph.D. degree. The Comprehensive Examination consists of (1) Cumulative Examinations, (2) Research Update Interview, and (3) Original Research Proposal Oral Examination.

**(1) Cumulative Examinations.** Eight examinations are given monthly during the academic year. The exact time, date and place will be posted in the Department of Chemistry and published in the Department newsletter. An examination is provided by each of the five divisions. The examinations are written by Graduate Fellows, and others approved by the division, and are to be read and answered by the students within 120 minutes<sup>15</sup>. The subject material for these examinations will emphasize either course work, the recent literature or a

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<sup>12</sup> Note that this need not be a tentative dissertation title; rather, it need only describe the general area of the dissertation research.

<sup>13</sup> A Graduate Faculty Member is permitted to serve as a member of a Reading Committee for the Ph.D. degree.

<sup>14</sup> Action of faculty, October 4, 1983.

<sup>15</sup> A student may attempt to pass more than one cumulative exam on a given exam date, however, all exams must be completed within the allotted 120 minutes and each exam that the student hands in counts as one of the initial eight (or ten in the case of students entering with a masters degree) attempts toward meeting the cumulative exam requirement, vide infra.

recent seminar topic. The examinations will be proctored by a member of the Graduate Committee.

Students must commence taking Cumulative Examinations no later than the beginning of the third semester of residence, unless specifically excused by the Graduate Committee<sup>16</sup>. The examinations will become part of the student's departmental file. Students are permitted to take a "free" Cumulative Examination provided it is taken during the semester of classification; this will be either the April or December Cumulative Examination. All examinations are graded A, B, C, and F. The results will be announced within three weeks of the examination date<sup>17</sup>. Once a student is instructed by the Graduate Committee to start cumulative exams, the student must appear for and attempt each subsequent examination unless explicitly excused in writing by the Graduate Committee. An unexcused absence or a blank exam will be counted as an F<sup>18</sup>.

The requirement for passing a Cumulative Examination at the Ph.D. degree level is a grade of B or better; however, each C may be compensated by an A (i.e.,  $A + C = 2B$ ). To qualify for the Ph.D. degree, the Ph.D. nominee must accumulate at least 3 passes in the first 8 attempts and either (a) a total of 5 passes in the first 8 attempts, or (b) reach a total of 6 passes in no more than 16 attempts. However, students who entered UNL with a masters degree from another institution, or were reclassified Ph.D. after receiving the M.S.-I degree from this Department, must accumulate at least 3 passes in the first 8 attempts and either (a) a total of 4 passes in the first 10 attempts, or (b) reach a total of 6 passes in no more than 16 attempts. Students may complete the cumulative examination requirement by accumulating the required number of passes on exams from any division or combination of divisions, unless their Supervisory Committee specifically requires otherwise. Failure to meet the Cumulative

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<sup>16</sup> Students who are reclassified Ph.D. Nominee after receiving the M.S.-I degree in chemistry from this institution must resume taking Cumulative Examinations immediately after reclassification. See section M.3.

<sup>17</sup> Examinations not graded within three-week period will automatically receive B grades. If, in the event that late grades are reported and a student's earned grade is an A, the recorded will be changed from B to A.

<sup>18</sup> Unexcused absences will be interpreted as failure to make "satisfactory progress" (see Section S).

Examination requirement will result in the student being reclassified to M.S.-I Nominee or dropped from the graduate program.

**(2) Research Update Interview (RUI).** The Research Update Interview is conducted by the student's Supervisory Committee. The objective of the interview is to determine whether the student has made good progress toward initiating a thesis research project. The RUI must be taken no later than the fourth semester of residency; typically by April 15th.

The student will give a 20 minute oral presentation to the Supervisory Committee. The committee expects that the student will demonstrate an understanding of the fundamentals of the project and the tools that may be necessary to tackle the problem, an awareness of the current and past literature relating to the project, and sufficient preliminary results to establish that the student is capable of carrying out the proposed project.

After the interview the student is judged to pass or fail by vote of the Supervisory Committee. The vote is to be recorded on Form 4 (see Appendix), which the student is to bring to the exam. The signed form is then submitted to the Graduate Committee Chair. In some cases the committee may define certain additional conditions before approving a pass (a conditional pass) or require the student to retake the exam. Students who pass continue on towards the Ph.D. degree. Students who are required to complete conditional requirements or to retake this examination must do so early in the fifth semester of residency (typically by September 15th), or sooner at the discretion of the committee. For those students who begin in the Spring semester, the corresponding dates are before Thanksgiving in the fourth semester and before 15 February in the fifth semester of residency. Students who fail the examination will be reclassified to M.S.-I Nominee or dropped from the graduate program.

In certain cases, the M.S.-I Final Oral Examination may be accepted by the Supervisory Committee in lieu of the RUI (see section M.3).

**(3) Original Research Proposal Oral Examination (OPO).** The purpose of this oral is to assess the student's ability to come up with an original idea unrelated to his/her thesis research, develop it into a research project, and defend the idea before a committee of knowledgeable

scientists. The student should consult all members of the Supervisory Committee to determine whether or not the topic to be presented is appropriate. A majority of the Supervisory Committee should approve the topic beforehand.

The Original Research Proposal Oral Examination must be attempted before the end of the seventh semester, by November 15 in the case of students admitted in the summer or fall, or by April 15, for students admitted in the spring. The OPO has both written and oral components. The student will prepare a written proposal using the approved forms (see Appendix II) and distribute copies of the proposal to all members of the Supervisory Committee at least one week prior to the examination date. On the examination date, the student will give a 20-minute oral presentation of the proposal and defend its significance and viability before his/her Supervisory Committee. The student is expected to be familiar with all aspects of the proposed research project.

After the oral examination, the student is judged to pass or fail by vote of the Committee. The vote is to be recorded on Form 5 (see Appendix) which the student is to bring to the exam. The signed form is then submitted to the Graduate Committee Chair. Passing the OPO constitutes the final component required to complete the Comprehensive Examination (*vide infra*). In some cases the committee may define certain additional conditions before approving a pass (a conditional pass) or require the student to retake the exam. Students who are required to retake this examination or complete a conditional pass must do so by early in the eighth semester of residency (typically by February 15th) or sooner at the discretion of the committee. Students who fail the examination will be reclassified to M.S.-I.

## **F. Admission to Ph.D. Candidacy**

Passing the OPO constitutes the final component required to complete the Comprehensive Examination, and therefore the student should also bring Form 6 (see Appendix) to the OPO examination. Students who pass the OPO should have Form 6 signed at the OPO meeting and then immediately file it with the Graduate College for admission to candidacy for the Ph.D. degree.

# GSB: A minimum of three full years of graduate study is normally required to complete a program for the degree of Doctor of Philosophy. Neither the courses taken nor the time spent in study determines the granting of the degree. It is given primarily for high attainment in some special field of scholarship and for demonstrated power of independent research in a subdivision of this field. The time limit on granting the Ph.D. degree is eight years from the time of filing the student's program of studies in the Office of Graduate Studies....When the student has passed the Comprehensive Examination ..., the committee will recommend to the Office of Graduate Studies his/her admission to Candidacy for the Ph.D. degree, noting in that recommendation the dates of completing the Comprehensive Examination.... Such a report must be filed at least seven months prior to the final oral examination.... The term of Candidacy is limited to three years.... If the term of Candidacy is extended beyond three years, the Candidate must pass another Comprehensive Examination. Following admission to Candidacy the student must register in the Graduate College during each academic year semester until he/she receives the Ph.D. degree.

## **G. Modified Requirements for the Ph.D. Nominee Entering with a M.S. Degree**

A student, who entered UNL with a M.S. degree in chemistry from another institution and is subsequently classified Ph.D. Nominee, can petition to transfer coursework from the M.S. institution as part of his/her program of study. The proper time to make this petition is at the first Supervisory Committee meeting. The courses recommended for transfer must be included on the form submitted for the student's program of study (form 3), and therefore, the masters degree must have been awarded by the time of the first Supervisory Committee meeting. The student's Supervisory Committee will consider and recommend those bona fide graduate level lecture courses for which the student received the grade of "B" or better<sup>19</sup>. Up to 30 credit hours may be transferred from a Master's program. With the exception of the modified cumulative exam requirement (section E. 1), the student must comply with all rules and timetables set for the Ph.D. nominee.

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<sup>19</sup> In special cases the Supervisory Committee may recommend transferring certain graduate level laboratory courses that emphasize specialized techniques relevant to the student's program of study (e.g., cloning techniques, handling radioactive compounds, etc.)

## H. Research

The research done for an advanced degree is as varied as the field of chemistry. However, there are a few points concerning this work which are common to many problems and worthy of mention.

**(1) The Research Topic.** It is customary for a student to make a decision to work with a particular professor on a problem in a fairly broad area. The specific problem within this area is usually chosen by the professor. This is appropriate since in the beginning the student frequently will not be in a position to appreciate the ramifications of the particular work. Furthermore, in attempting to solve the research problem assigned, the student usually will benefit from the ideas, expertise and guidance of the professor.

During the course of a research program the graduate student becomes increasingly familiar with the subject of the investigation and may even be considerably more expert than his/her professor in the particular area at its completion. Nevertheless, unless agreements to the contrary are negotiated, it is assumed that the general research area in which the specific problem fits is one in which the professor will continue to work. It is to the mutual benefit of the student and professor to agree, before the student's departure, on the responsibilities for future work in the general research area.

An occasional student will, on his/her own initiative, devise a research problem upon which he/she wishes to work. This is acceptable if he/she can find a Graduate Fellow who is willing to oversee the project and be the chair of the student's Supervisory Committee. It is to be stressed that a faculty member has the right to decline supervision of research by any graduate student, regardless of the origin of the research problem. If the research problem is devised by the student, it normally would be assumed that the student would have priority for continuing the problem after his/her departure. However, it would be well for all concerned for these matters to be made a part of a set of written records and agreements, as appropriate.

**(2) Research Notebooks.** The student is expected to keep an accurate, up-to-date record of all research; typically in a set of research notebooks. Again, unless written agreements to the

contrary are negotiated, these notebooks are the property of the University of Nebraska Chemistry Department and under the custodianship of the professor. They must not be taken by the student when he/she finishes his/her degree and leaves.

**(3) Miscellaneous Property and Patents.** Many research problems may result in the construction of apparatus, the writing of a computer program, the determination of spectral data, the synthesis of compounds and other activities which produce material or objects which are considered property. All such property belongs to the University of Nebraska-Lincoln Chemistry Department, and the research adviser is to be its custodian. This is true whether the student receives a salary from the State of Nebraska, federal funds from the research adviser, or is supporting himself or herself.

Research can also result in patentable ideas. This is a particularly thorny area considering our complicated Patent Laws. Should a patentable idea arise in the course of research the rule of the Nebraska Board of Regents must be adhered to, and it is recommended that the office of the Research Administrator be consulted in such case. Students should also be cautioned that keeping of accurate research notebooks is of particular importance here, since such notebooks may be the only way of establishing priority in contested cases.

## **I. Ph.D. Residency Requirements.**

Occasionally, a student will complete part of his/her thesis studies away from the UNL campus. Under these circumstances the Graduate College has established a set of minimum residency requirements in at UNL. For a student beginning a doctoral program in the University of Nebraska system with a Bachelor's Degree, the residency requirement for the Ph.D. is 27 hours of graduate work within a consecutive 18-month period or less, with the further provision that 15 of these 27 hours must be taken after receiving the Master's Degree or its equivalent. For a student who transfers to the University of Nebraska system with a Master's Degree from another Institution, or who takes a break in his/her graduate work at Nebraska between the time the Master's Degree is awarded and the time he/she starts work on a doctoral program, the residency requirement for the Ph.D. is 27 hours of graduate work in a consecutive 18-month

period or less. For a member of the University staff who is engaged at least half-time in instruction or research in his/her major department, or for persons who are employed in the field in which they are doing their doctoral degree work, the residency requirement is 24 credit hours of graduate work within a consecutive two-year period with the further provision that he/she take at least 12 of these after receiving the Master's Degree or its equivalent. No more than one-third of the work for residency or 9 hours total credits may be taken during the summer.

## **J. Completing the Ph.D. Degree<sup>20</sup>**

Once the fun part of the doctoral studies (that is, the excitement of research and discovery) is completed, the real work begins. Completing the Ph.D. has two parts; a written dissertation and its oral defense (final oral exam).

**(1) Dissertation: Preparation and Approval.** The written doctoral dissertation<sup>21</sup> should be completed and approved by the Reading Committee while the graduate student is in residence. The thesis may be completed *in absentia* only with the explicit prior written approval of the student's Committee. The Reading Committee is made up of two members of the Supervisory Committee excluding the Committee Chair.

A student who does not have at least one full paper published, accepted, or in press from the Ph.D. degree thesis work, must have bound at the end of the thesis a good draft copy of a paper intended for publication. However, a dissertation may not consist merely of a series of publications connected by brief narratives. An abbreviated, but complete, discussion that refers to papers bound as appendices and effectively integrates the published work may constitute an appropriate dissertation.

#GSB: The dissertation and abstract are passed upon by a Reading Committee of two members from the Supervisory Committee, excluding the chairperson. The manuscripts must be presented to members of the Reading Committee in time to permit review and

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<sup>20</sup> The Graduate College has a time limit on granting the Ph.D. Degree. The limit is eight years from the time of filing the student's program of studies in the Office of Graduate Studies.

<sup>21</sup> For details concerning the preparation of the dissertation, see Appendix III.

approval which must be indicated at least three weeks in advance of the final oral examination. Two copies of the approved dissertation, two copies of the approved abstract and application for the final oral examination must be filed in the Office of Graduate Studies at least three weeks before the final oral examination. (See the Graduate Studies Bulletin for the physical requirements for the dissertation.)

@AGF: An unfavorable report by one member of the Reading Committee may be rejected if in the judgment of the Supervisory Committee the report does not constitute a defensible judgment.

A dissertation which has been disapproved or unfavorably reported upon by both members of the Reading Committee should not be accepted by the Supervisory Committee until the basis for the disapproval has been removed. If these criticisms involve extensive changes, the question of rejecting the dissertation entirely, or postponing its acceptance until the following semester, should be seriously considered by the Supervisory Committee.

**(2) Thesis Defense (Final Oral Examination).** Normally, a student will be required to defend the thesis in an oral examination administered by the Supervisory Committee. This is usually done after the written dissertation in preliminary form has been approved by the Reading Committee. The exam includes an oral presentation of the thesis research which is announced and open to the public. The Supervisory Committee otherwise determines the character and length of the exam. The written dissertation typically needs additional revision after the final oral examination. The final oral examination over the dissertation may be waived only with the unanimous consent of the Supervisory Committee.

#GSB: The final examination is oral. It is given by the Supervisory Committee after the candidate's studies have been completed and the dissertation accepted by the Reading Committee. The Supervisory Committee also determines the character and length of the final oral examination. The examination may be devoted to the special field of the dissertation or to the candidate's general knowledge, or it may be designed to test his/her judgment and critical reasoning.

The Chair of the Supervisory Committee must file in the Graduate Office at least three weeks prior to the oral examination either: a) a recommendation, accomplished by signing the Application for Final Oral Examination, by each member of the Reading Committee indicating general approval of both the dissertation and abstract, or b) a statement signed by a majority of

the Supervisory Committee indicating that the Committee has taken action to reject an adverse report by one member of the Reading Committee and recommending that the candidate be permitted to come up for oral examination.

#GSB: The final oral examination for the Ph.D. will not be scheduled unless the chairperson of the Supervisory Committee and at least two other members of the Committee are available for the examination. Exceptions may be made only by permission of the Dean for Graduate Studies. In any event, the supervisor of the dissertation must have seen and approved the completed dissertation before the examination will be scheduled<sup>22</sup>.

#GSB: The final oral examination over the dissertation may be waived only with the unanimous consent of the Supervisory Committee. The Committee reports the results of the final oral examination and the reason for its waiver to the Office of Graduate Studies.

#GSB: Following the successful completion of the oral examination, two copies of the dissertation and one copy of the abstract are presented to the library. The first page of one copy of the dissertation must bear the signatures of all members of the Supervisory Committee who approve the dissertation. The first page of the second copy shall indicate the names (typed) of all members of the Supervisory Committee who signed the original title sheet. This typed title sheet will be microfilmed with the dissertation. The student must also present to the library a signed agreement for the publication of the abstract and microfilming of the dissertation.

#GSB: Before the degree is granted, each candidate pays a fee of \$30 to cover the cost of microfilming the entire dissertation and of publication of the abstracts in Microfilm Abstracts, which is issued bimonthly by University Microfilms, Inc., of Ann Arbor, Michigan.

#GSB: In the event that members of an oral examining committee are not unanimous regarding passing a candidate, the student is to be approved for the degree if only one examiner dissents. However, in each case, the dissenting member of the Committee will be expected to file a letter of explanation in the Office of Graduate Studies.

#GSB: If a student fails to pass the final oral examination for an advanced degree, his/her committee must file a report on the failure in the Office of Graduate Studies and indicate what the student must do before taking another examination. Another examination may not be held during the same semester or the same summer session in which the student failed.

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<sup>22</sup> Form 7 (Appendix)

## **K. The M.S.-I Degree Nominee: Research Adviser Selection.**

The Master's Degree represents significant academic accomplishment beyond the undergraduate level in both course work and research. In this Department a student will be classified as M.S.-I Nominee if, in the judgment of the Graduate Committee, the student wants to increase his/her professional competence in chemistry and shows the ability to do so, but is not fully prepared, qualified, or willing to pursue chemical research in a highly individualistic fashion as is required in the doctoral program.

Unless explicitly exempted in writing by the Graduate Committee, the M.S.-I Nominee must complete Chem. 898A and select a research adviser by March 1<sup>23</sup>. The M.S.-I nominee should make this selection after discussing available research projects with several professors who are working in areas of interest to the student. The student completes the selection of a research adviser by following the appropriate guidelines for the M.S.-I Nominee (outlined below) and by filing Form 8 (Appendix) with the Graduate Committee Chair. Specific comments with regard to the details of carrying out thesis research at UNL are discussed in section H.

The M.S.-I Nominee must maintain a cumulative graduate level coursework GPA greater than 2.50, with no grades of C or less in an undergraduate or undergraduate/graduate co-listed course, or a grade of F in a graduate level course. The Program of Study for the M.S.-I degree (i.e., the selection of appropriate course work and execution of the research program) is a collaborative effort between the student and the research adviser. No Supervisory Committee is formed for the M.S.-I program. The Memorandum of Courses, required for M.S.-I Candidacy, should be filed before completion of no more than one-half of the program.

#GSB: Memorandum of Courses<sup>24</sup>, required for Candidacy, must be filed before completion of no more than one-half of the program and on recommendation of the major

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<sup>23</sup> Whether the research adviser is a Graduate Faculty Member or Fellow is of no practical consequence to the graduate student. In those cases where the chosen research director is a Graduate Faculty Member, one of the Graduate Faculty Fellow participants on the Supervisory Committee will be assigned co-chair of the committee.

<sup>24</sup> Form 9 (Appendix). Up to 1/2 of the required graduate level course work (but not thesis research hours) may be transferred from another institution.

and minor departments and approval of the Dean for Graduate Studies. The work required for a Master's Degree must be completed within six consecutive calendar years. ... The Master's Degree under Option I should be chosen by those who are preparing for careers in research and scholarly work or in college or university teaching. Under this option a student must earn a minimum of 30 semester hours of credit, consisting of 20-24 semester hours of regular course work, and present a thesis equivalent to 6-10 semester hours. At least one-half of the required work, including thesis, must be taken in one major subject. Eight hours credit, in addition to the thesis, must be earned in courses open exclusively to graduate students (900 level or 900 level without 400 or lower counterparts).

### **L. Comprehensive Examination (M.S.-I Nominee)**

The M.S.-I Nominee must pass the Comprehensive Examination which consists of the successful completion of the Cumulative Examination Requirement. The *modus operandi* of the cumulative examination requirement is outlined in Section F above. To qualify for the M.S.-I degree, the student must pass three Cumulative Examinations out of the first eight attempts with a grade of C or better. Note that additional passes accumulated at this time, or accumulated grades of A or B, cannot be applied toward satisfying the Ph.D. Nominee requirement in the event that the M.S.-I Nominee is later reclassified (see Section M.3).

### **M. Completing the M.S.-I Degree<sup>25</sup>**

The research adviser and the student together decide upon their plan for the research. The two also decide upon the proper terminus of the research and on the thesis content. In general, it is expected that the research and thesis will represent a significant piece of work on a chemical problem. Publication of the results of this work may appear in the chemical literature, but this shall not be deemed a requirement for the degree. Completing the M.S.-I degree has two parts: a written dissertation (M.S.-I thesis) and its oral defense (final oral exam).

**(1) Dissertation: Preparation and Approval.** The written dissertation is expected to conform in style and form to typical UNL standards. The completed M.S.-I thesis dissertation

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<sup>25</sup> The Graduate College rules state that the M.S.-I Degree must be completed within 6 consecutive calendar years, beginning from the date when the first course for M.S.-I credit was taken.

must be approved by the research adviser and the thesis Reader while the student is in residence. The Reader must be a Graduate Faculty Fellow in the Chemistry Department. The thesis may be completed in absentia only with the explicit prior written approval of the Graduate Committee.

**(2) Thesis Defense (Final Oral Examination).** The student is required to defend the M.S.-I thesis in a final oral examination administered by an Examining Committee made up of the research adviser, the thesis Reader and at least one other Graduate Faculty Fellow from the Department. The Examining Committee is set up by the adviser and the student. The final oral examination is to be done after the written dissertation in preliminary form has been approved by the research adviser and the Reader. The student will give a 20 minute oral presentation to the Examining Committee describing the thesis research. The Examining Committee otherwise determines the character and length of the oral exam. The examination may be devoted to the special field of the dissertation or to the candidate's general knowledge, or it may be designed to test the student's judgment and critical reasoning. The committee expects that the student will demonstrate an understanding of the fundamentals of the project, the tools used to tackle the problem, an awareness of the current and past literature relating to the project, and sufficient results to establish that the student has significant academic accomplishment beyond the undergraduate level in both course work and research. Students typically find that the written dissertation needs additional revision after the final oral examination.

The Examining Committee evaluates whether the student passes or fails the final oral exam, and at its prerogative may require the candidate to re-present the defense of the thesis. Upon passing, the Examining Committee signs Form 10 (see Appendix), which the student forwards to the Graduate Committee and the Graduate College. M.S.-I Candidacy begins when the Memorandum of Courses (Form 9) is accepted by the Graduate College. The Graduate College rules state that the M.S.-I Degree must be completed within 6 consecutive calendar years, beginning from the date when the first course for M.S.-I credit was taken. The Department limits financial support of M.S.-I students to a total of six semesters.

**(3) Petitioning for Reclassification to Ph.D. Nominee.** Upon completing of the requirements for the M.S.-I, but prior to the final oral examination, the student may request in writing that the Graduate Committee consider reclassifying the student to Ph.D. Nominee. In this event, at least two current members of the Graduate Committee must be present at the Masters' Final Oral Examination. Either or both of the Graduate Committee members may, but need not, be members of the Examining Committee. The Graduate Committee will consider the student's overall record at UNL including performance in graduate level coursework, cumulative exams, M.S.-I research, and other program requirements. In recommending reclassification, the Graduate Committee looks for strong evidence that in the course of completing the M.S.-I degree, the student demonstrated the capacity to function at the level of a typical successful Ph.D. Nominee.

In the event that an the M.S.-I recipient is recommended for reclassification and continues on to the Ph.D. with the same research adviser, the M.S.-I thesis and the Ph.D. dissertation must each be separate scholarly works. The Ph.D. dissertation may make significant references to the M.S. thesis, but the M.S. thesis cannot appear intact as part of the Ph.D. dissertation. The Ph.D. research may however build upon and be an extension of the M.S. research. The student must establish a new Ph.D. supervisory committee and meet to propose a new Program of Study within one month.

The reclassified student is expected to satisfy the comprehensive examination requirements and other program requirements in a timely fashion. Often, but not necessarily, if the student continues with the same advisor and in the same research area, the Supervisory Committee will accept the M.S.-I Final Oral Examination as the RUI. If the student continues toward the Ph.D. degree with a different advisor or in a very different research area, the RUI must be attempted within one year of reclassification to Ph.D. Nominee. The student must begin taking cumulative exams with the next offered exam and is expected to satisfy the cumulative examination required as outlined for students entering UNL with an M.S. degree (see section G), however, there will be no free cumulative exam. In addition, the student must attempt his/her

original research proposal oral (OPO) at its normal time (i.e., before or during the seventh semester in residence) and meet all other program requirements.

## **N. M.S.-II Degree**

Students wishing to elect for this option must specifically apply for this program at the time of their initial application for admission into the Graduate College, and must first seek permission of the Chemistry Department Graduate Committee to work towards this degree. Neither Departmental support nor tuition waiver is available for students studying under this option. Transfer from Chemistry Ph.D. or other M.S. degree options will not be considered.

The M.S.-II degree is based largely on the successful completion of an approved 36 semester-hour sequence of course work in graduate level chemistry and either one or two minor areas, as described in the Graduate Studies Bulletin. At least 12 hours must be earned in courses open only to graduate students. These include only 900-level graduate courses and 800-level courses that do not have an undergraduate (400-level) counterpart. The student must maintain a C+ average and must satisfy all other grade requirements of the Graduate College. A thesis is not required, but students must pass a final oral exam before an Examining Committee composed of the Graduate Chair and two other Chemistry Graduate Faculty Fellows .

The M.S.-II program of studies must be approved by the Graduate Committee before the end of the student's second semester. It should be formulated with the advice of the Graduate Committee Chair, and courses taken without prior approval may not be accepted for inclusion into the program of studies and thus not count towards the M.S.-II degree. A maximum of 2 credits of divisional seminar (Chem. 920, 930, 940, 950 or 970) and 2 credits of divisional seminar(Chem. 810) may be applied towards the M.S.-II degree requirements.

## **O. M.S.-III Degree**

The degree is intended for the student who has been admitted to Ph.D. candidacy and who wishes to obtain a masters degree en route to the doctorate at UNL. The M.S.-III degree option is rarely approved in this Department. The student must obtain special written permission from the Graduate Committee to work towards this degree and must justify the appropriateness of fulfilling the masters degree requirements under the M.S.-III option, rather than the more typical M.S.-I option.

## **P. Terminal Classification**

A student who has been classified terminal should contact the Graduate Committee as soon as possible. A student who is classified terminal will not receive the M.S.-I or Ph.D. degree from this institution, nor will the student receive support beyond the time specified in the letter or form of appointment.

## **Q. Types of Student Support**

A student may receive financial support from one or more of three sources: (1) Teaching Assistantship, (2) Research Assistantship, and (3) Fellowship. Financial support is at all times contingent upon the student maintaining satisfactory progress toward meeting degree and program requirements (see Section R); however, neither the Department nor the research adviser guarantees continuing support to graduate students.

In return for a Teaching Assistantship (TA), a student is required to assist in the teaching and supervision of an undergraduate chemistry course. This may require up to a total of 15 hours per week. At the same time the student is also expected to continue satisfactorily toward the appropriate advanced degree. The needs of the Department, the student's area of competence, the student's performance in prior TA assignments as judged by student ratings and faculty evaluations, and the equitable distribution of TA positions amongst the research groups in the Department will dictate whether, and in which course, the student will assist. All prospective TA's must complete the TA training program given by the Department prior to the start of each

Fall semester. In addition, the international student must first successfully complete the International Teaching Assistant Institute offered by the UNL Teaching and Learning Center before he/she is awarded a Departmental TA.

A Research Assistantship is usually awarded by an individual research adviser to a student. For this the student is expected to carry out full-time research. A Fellowship is usually a competitive award and provides a student with time to do full-time research. There are a number of National Fellowships and a limited number within the University and/or the Chemistry Department. Further information concerning Fellowships may be obtained from the Graduate College or the Chair of the Chemistry Department Graduate Committee.

Graduate students who receive Teaching or Research Assistantships or Fellowships must obtain Graduate Committee approval before engaging in outside employment.

## **R. Time of Support<sup>26</sup>**

It is expected that the requirements for the appropriate degree be completed as soon as possible. Support will be limited to a maximum of six semesters for the M.S.-I student. The Ph.D. student will be limited to ten semesters of support, which after review by the Graduate Committee, could be extended for an additional semester or two of support. Students who receive the M.S.-I degree, and who are subsequently reclassified Ph.D. Nominee, will operate under the same time of support limits as other students. It must be emphasized that these are maximum numbers and not to be taken as typical. Continued financial support is at all times contingent upon the student maintaining satisfactory progress toward meeting degree and program requirements (see Section R); however, neither the Department nor the research adviser guarantees continuing support to graduate students.

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<sup>26</sup> "Support" means money directly administered by the Department, such as Teaching Assistantships and fellowships administered by the Department, as well as research funds awarded to a member of the Department. Fellowships and other sources of income awarded directly to, or earned by, the student from non-departmental sources are not considered in these time limits.

## **S. Satisfactory Progress**

Satisfactory progress toward an advanced degree is required for a student to remain in good standing within the Department and to continue receiving support. Satisfactory progress is based upon: (1) course work performance and cumulative grade point average; (2) teaching performance; (3) research performance; and (4) Comprehensive Examination progress and performance. The Graduate Committee reviews each student's performance record at least once a semester, and based upon the accumulated record, accesses the student's progress and classification. The student should note that these reviews may result in reclassification and/or change in the level or type of support.

Teaching performance will be judged based upon student ratings and evaluations from the appropriate Instructor (and/or Freshman Coordinator). The student will be allowed to see the available evaluations (see Section U). A student is entitled to appeal in writing and/or in person to the Graduate Committee concerning any decision based upon the performance of the student (see Section U).

## **T. General Course Requirements<sup>27</sup>**

Full-time graduate students are required to enroll in 12 credit hours per semester during the academic year and 4 credits per five-week summer session until the student completes the Comprehensive Examination Requirement and is admitted to candidacy for the Ph.D. degree (see section F)<sup>28</sup>. After being admitted to Ph.D. candidacy, the student must meet the course work requirements as defined in the approved Program of Study. In doing so the student may enroll in

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<sup>27</sup> For the M.S.-I degree, see Section M for M.S.-I course requirements. For the Ph.D. degree the minimum amount of graduate credit is 90 semester hours, including a dissertation. No fewer than 45 semester hours must be completed at the University of Nebraska.

<sup>28</sup> The Graduate College will not allow a student holding a Teaching Assistantship to register for more than 12 hrs. per semester. If a student has too many hours in his/her program to register for 898A or 810 in a given semester, he/she should attend the course and register for that course as soon as possible thereafter to receive credit. Attendance will be recorded in the Department to ensure that proper credit can be assigned.

as few as 1 credit hour per semester during the academic year and 4 credits per five-week summer session<sup>29</sup>.

All graduate students are required to complete: (1) Chemistry 898A (1 credit hour); (2) all courses listed on the approved Program of Study or required by special action of their Supervisory Committee or the Graduate Committee; (3) four semesters of Chemistry 810 (Departmental Colloquium, 1 credit hour per semester); and (4) four semesters of an appropriate divisional seminar (1 credit hour per semester). Furthermore, students are expected to actively participate in Departmental Colloquia and in their divisional seminar program throughout their time of residence. Failure to do so will be deemed unsatisfactory progress.

In general, courses that are seminar, research, or involve laboratory preparations are counted neither toward classification nor for computation of the grade point average by the Graduate Committee (see sections C, D and S). At the discretion of the Graduate Committee, graduate courses in other departments may be used in calculating the GPA. In general these must be non-laboratory, non-seminar courses and be deemed necessary for the student's program. A minimum grade of C or P (pass) is required for graduate credit in 900-level courses or 800-level courses without 400 or lower counterparts. A minimum grade of B is required for graduate credit in 800-level courses with 400 or lower counterparts within the student's major department or area<sup>30,31</sup>. When applied toward an advanced degree program, only courses at the 900 level, or 800 level without 400 or lower counterparts, in the major department or interdepartmental area may be taken on a pass/no pass (P/N) basis. For a course that is taken a second time in an attempt to improve the grade, neither the first grade, nor the hours for that course are used in computing the GPA; this, irrespective of the grade earned in the second try.

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<sup>29</sup> The four credit hours registration during the summer session is sufficient to qualify for use of the student health center facilities provided other applicable university requirements are also met.

<sup>30</sup> By action of the faculty (Nov. 27, 1979) and stated in the UNL Graduate Student Bulletin.

<sup>31</sup> The Graduate Committee may exempt certain divisionally designated introductory graduate level classes and allow a student earning a C or C+ in that course to continue in the doctoral program as long as other program requirements are met.

A student failing to receive a minimum acceptable grade for graduate-level credit may not continue his/her program of studies without permission of the Supervisory Committee (if appointed) and the Graduate Committee. Special requirements may be assigned to determine the student's qualifications for further graduate level study.

## **U. Student Appeals**

Graduate students at any time may discuss matters directly or indirectly related to their program with the Graduate Committee. If a student wishes to formally appeal either a decision made by the adviser, Supervisory Committee, or their division, or a grade awarded in a graduate level course, then the appeal should be directed in writing to the Graduate Committee. Formal appeals should be made to the Chair of the Graduate Committee. Further appeal beyond the Graduate Committee may be made directly to the Dean of the Graduate College.