FALL 2014

CHEMISTRY DEPARTMENT
GUIDELINES
FOR GRADUATE STUDENTS
(Revised 06-14)

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FORMAL REQUIREMENTS, POLICIES AND PROCEDURES FOR ADVANCED DEGREES

A. UNIVERSITY-WIDE REQUIREMENTS

Requirements for advanced degrees, together with regulations of the Graduate School, are described in the publications:

(1) Graduate Degree Programs Bulletin

(2) Thesis Guide

These are available at the Graduate School office, 114 Kern Graduate Building or on the Graduate School web page (http://www.gradsch.psu.edu/). All graduate students are expected to assume full responsibility for knowing these requirements and procedures.

B. DEPARTMENT REQUIREMENTS (1 – 14)

Candidates for advanced degrees in Chemistry must meet the following requirements established by the Chemistry Department faculty. Please note:

In the course of your graduate career, you will be required to prepare and submit for grading/evaluation several documents, as described in detail below. Format requirements for these submissions are provided in this document. From time-to-time, minor changes (including number, length or format of written papers and proposals) may be introduced at the discretion of the Graduate Counseling and Awards Committee (GCAC) and all students will be notified of these changes. It is your responsibility to follow the most current guidelines; any updates will be sent to your PSU e-mail account and are available in the Graduate Program Office.

1. Area and Writing Qualifying Requirements

Six qualifying exams will be used to evaluate your preparedness for our program; five of these exams are area qualifiers in the traditional disciplines of analytical, inorganic, organic, physical chemistry, and biochemistry. The qualifying requirement for certification as a Ph.D. candidate is that a student must demonstrate proficiency in three of these areas. For certification as a M.S. candidate, proficiency is required in two areas. Proficiency may be demonstrated by either:

a. Passing the qualifying examination upon entrance,

b. Obtaining a grade point equivalent of 3.0 in at least three credits of approved coursework in the area. The courses will be designated by the GCAC. Coursework used to establish proficiency must be completed during the student’s first two semesters of enrollment.

The sixth qualifying exam is a writing qualifier to assess your writing skills. You will write a short (~3 page) paper based upon a research seminar presented by a Chemistry Department faculty member during Orientation. These papers will be evaluated by a professional English writing instructor. Those students who writing skills are judged to be deficient will be enrolled in a Departmental technical writing course (non-credit) that is tentatively scheduled to meet once a week for the first 10 weeks of the Fall semester. This course will be taught by a qualified English writing instructor. The grade that you receive
on your assessment paper (or the grade that you receive in the writing course, if you should take it) will be factored into your Chem 500 class grade. See Section 14b for more details.

The GCAC meets with each new graduate student after the area qualifying examinations to help plan a course schedule. Courses are chosen first to make up any deficiencies revealed by the examinations, and second to give the student advanced training in their area(s) of interest. The Chemistry Department provides chemistry course syllabi for all the graduate and upper-level undergraduate courses that will be offered during the academic year.

The Graduate Student Program Manager examines the transcript of each first-year student at the end of the Spring semester to review progress. The Graduate Council requires a grade point average of 3.0 for admission to Ph.D. candidacy. Chemistry 602 (Supervised Experience in College Teaching) is not used in computing this average. Students who have not met the area qualifying requirement and 3.0 GPA requirement by the end of their second semester of enrollment cannot be admitted into the Ph.D. program until the area qualification and the GPA deficiency are corrected through further coursework. Students in this circumstance may be dropped from the graduate program, or they may be given the opportunity to complete an M.S. degree. If the M.S. degree is completed successfully, then the student will be evaluated by their Ph.D. committee for continuation in the Ph.D. program.

2. Course Requirements

A Ph.D. candidate is required to take a minimum of five 3-credit courses that can count towards his/her degree. A list of Fall and Spring Chemistry Department courses that can be used to satisfy this graduate credit requirement will be given to you during Orientation. In addition, courses outside the Chemistry Department that can be used to satisfy the 5-course requirement will be included. Note that Chemistry 430, Dr. Masters' organic mechanism course 432, 450 and 452 cannot be used to satisfy program degree requirements. Courses labeled with the 497 designation are "special topics" whose content, and therefore suitability for satisfying the graduate credit requirement, can change over time. A candidate's doctoral committee may also require additional specific courses.

All graduate students are required to enroll for 1 credit of CHEM 500, Seminar in Chemistry, during each semester of their first and second years in residency. Detailed information concerning CHEM 500 is provided in section 14 and during Orientation. Be sure to familiarize yourself with the guidelines.

Graduate students are permitted, even encouraged, to take courses outside of the Chemistry Department's offerings. However, there are some restrictions on such courses:

a. All courses offered outside of the Chemistry Department that are being considered to fulfill the 5-course requirement must receive pre-approval from the GCAC; please contact the Graduate Student Program Manager to submit your petition for approval. A syllabus should be provided with the request. Please note that the Graduate Student Program Manager has a list of courses outside of the Chemistry Department that already have been pre-approved for graduate credit, so check with her first.

b. If a student's tuition is being paid by a federally sponsored project, every course must have a direct benefit for the student's scientific/research growth. In addition, any outside course taken by a post-Comprehensive Exam student, regardless of the funding source, faces the same restrictions.
c. Any major deviation from a standard chemistry graduate student course portfolio is subject to approval by the GCAC; please submit a petition through the Graduate Student Program Manager.

3. Safety Examination Requirement
Before beginning laboratory research, a student must pass the safety examination administered by the Department’s Safety Committee. Work in any laboratory is contingent upon this prerequisite, which is strictly enforced. Safety examinations will be offered during Orientation. Arrangements for those students failing the exam will be made by the Graduate Program Office.

4. Chemical Storage and Waste Management Requirements
All graduate students working in a lab are required to receive training on handling of chemicals and chemical wastes. Individuals must be trained within 90 days of arriving at Penn State.

5. Teaching Requirement
All graduate students must serve as a teaching assistant for at least one semester. During at least one semester that a student is a teaching assistant, the student must be registered for 1 credit of Chemistry 602, Supervised Experience in College Teaching and obtain a “B” or better grade. This requirement must be met prior to scheduling the Comprehensive Exam. Exceptions to any aspect of this policy will be handled on a case-by-case basis by petition to the GCAC (please e-mail the Graduate Student Program Manager).

6. English Requirement for International Students to Serve as Teaching Assistants
All entering international students are required to take an American English Oral Communicative Proficiency Test. The test is administered by the University’s Linguistics and Applied Language Studies Department.

The oral proficiency test is given only at the beginning of the Fall semester. Students are required to pre-register for the test. The test scores are available through the Chemistry Department Graduate Office.

a. Those students who achieve a score of 250 or above on the exam may be approved for teaching.

b. Those students who score below 250 will be required to enroll and pass classes designated by the University’s Linguistics and Applied Language Studies Department. Students need to pass all courses with an “A”. Completion of ESL 118G is mandatory before a student will be allowed to teach.

c. Students who are required to enroll in ESL courses must satisfy the requirements within the stated time limits:
   i. ESL 115G – end of fourth semester
   ii. ESL 116G – end of third semester
   iii. ESL 117G – end of second semester
   iv. ESL 118G – end of second semester
Students who fail to satisfy the requirements within the stated time frame will be **required** to enroll in ESL classes during the summer semester, with the possibility of being responsible for paying the tuition and fees. Note that these English proficiency requirements apply only to qualifying for teaching assistant opportunities. As a separate and independent matter, all students must demonstrate oral and written proficiency in English in order to take the Comprehensive Exam; see Section 14c for details.

7. **Doctoral Committee Selection and First-Year Committee Report Requirement (= part of the University-defined Candidacy Exam)**

a. **Doctoral Committee.** Your doctoral committee is formed after consultation with your research preceptor. The composition of this committee is made to enhance your graduate experience. The student and their preceptor will select a doctoral committee based upon the guidelines listed in the graduate Bulletin, which are reproduced below (http://bulletins.psu.edu/bulletins/whitebook/degree_requirements.cfm?section=degree):

**Doctoral Committee**—General guidance of a doctoral candidate is the responsibility of a doctoral committee consisting of four or more active members of the Graduate Faculty, which includes at least two faculty members in the major field. The dissertation adviser must be a member of the doctoral committee. The dissertation adviser usually serves as chair, but this is not required. If the candidate is also pursuing a dual-title field of study, a co-chair representing the dual-title field must be appointed. In most cases, the same individual (e.g., dissertation adviser) is a member of the Graduate Faculty in both the major and dual-title fields, and in such cases may serve as sole chair. At least one regular member of the doctoral committee must represent a field outside the candidate’s major field of study in order to provide a broader range of disciplinary perspectives and expertise. This committee member is referred to as the “Outside Field Member.” In cases where the candidate is also pursuing a dual-title field of study, the dual-title representative to the committee may serve as the Outside Field Member. If the candidate has a minor, that field must be represented on the committee by a “Minor Field Member.” (See also Major Program and Minor Field under D.Ed.—Additional Specific Requirements in this bulletin.) This committee is appointed by the graduate dean through the Office of Graduate Enrollment Services, upon recommendation of the head of the major program, soon after the student is admitted to candidacy. The dean may on occasion appoint one or more members of the committee in addition to those recommended by the program chair. A person not affiliated with Penn State who has particular expertise in the candidate’s research area may be added as a “Special Member,” upon recommendation by the head of the program and approval of the graduate dean (via the Office of Graduate Enrollment Services). A Special Member is expected to participate fully in the functions of the doctoral committee. If the Special Member is asked only to read and approve the doctoral dissertation, that person is designated a special signatory. Occasionally, special signatories may be drawn from within the Penn State faculty in particular situations.

The membership of doctoral committees should be periodically reviewed by the program chair to ensure that its members continue to qualify for service on the committee in their designated roles. For example, if appointments, employment at the University, etc., have changed since initial appointment to the committee, changes to the committee membership may be necessary. If changes are warranted, they should be made as soon as possible to prevent future problems that may delay academic progress for the student (e.g., ability to conduct the comprehensive or final examinations).
The Committee as a whole is responsible for guiding and mentoring the academic program and monitoring the progress of a student throughout their graduate career. The closer the connection to these faculty members over the years, the more beneficial it will be to you when they are called upon to write recommendation letters to future employers.

PROCEDURE FOR SELECTING YOUR GRADUATE COMMITTEE:

Please consult with your Ph.D. preceptor and identify two faculty members that are in your major field of study (broadly defined as "chemistry"). These faculty members can be within the Chemistry Department or from another Department, but they must be members of the Graduate Faculty.

1. Turn in those names, your preceptor's name with their signature, and the tentative title/topic of your thesis to the Graduate Program assistant by May 31. Use the PRELIMINARY SELECTION FORM provided by the Graduate Office. You do not need to consult with your chosen faculty first. The Graduate Program assistant will circulate your requests to the faculty involved, asking for a yes/no decision. This Preliminary Selection Form will be returned to you with the accepts/declines when the faculty that you have chosen have made their decisions.

2. If one or both of the faculty members do not accept your request, then you must identify new candidates for your Ph.D. committee. You will receive a list of Chemistry faculty who have not yet "filled up"; please consider these faculty members before approaching Chemistry faculty not on the list. Please approach the faculty member directly and make your request. When you have the required two agreeable faculty members (in addition to your PhD advisor), fill those names in and return the Preliminary Selection Form to the Graduate Program Assistant.

3. Identify a suitable "outside-of-the-field" member for your committee. This individual almost always resides in a Department other than Chemistry. Contact this individual and ask them to serve on your committee.

4. Please use the formal Ph.D. committee signature form (provided by the Graduate Office) to obtain the signatures of all four of your committee members (your preceptor, two in your major field and one outside-of-the-field member). Turn in the completed form to the Graduate Program assistant by the July 31 deadline and schedule your 1st year committee meeting, to be completed by no later than September 30.

b. In some circumstances, it may be necessary to change the composition of your Ph.D. committee. If you find yourself in this situation, please submit a petition to request the change to the Graduate Student Program Manager. This petition should indicate the reason for the change. If the reason is anything other than a change in the availability of a committee member, the GCAC may be asked to evaluate the request. Any change to the committee, substitution of committee members, or participation by committee members at a distance must follow University guidelines. All committee members, former and new, must be notified of the changes. The Graduate Student Program Manager will submit the appropriate paperwork to the Graduate School on your behalf.

c. First-Year Report and Committee Meeting. Each student is required to meet with his/her newly established Doctoral Committee as a group. This meeting constitutes (part of) the University-mandated Ph.D. Candidacy Exam. At least one week prior to this meeting, a short written report (< five 1.5-spaced pages, all-inclusive; full-justified 1" margins, 12-point font)
outlining preliminary results if obtained and plans for the initial stages of the student’s thesis research must be distributed to the committee. The report will be graded by the Preceptor, and that grade will be part of the Chem 500 graded material for the 2nd year (see 14 below for details). Students are responsible for scheduling the committee meeting and preparing a 20–30 minute oral presentation to the committee, followed by a question-and-answer session. The 1st year committee form and report must be completed and returned to the Graduate Program Office before the end of September in the second year of enrollment. Requests for an extension must be approved by the GCAC.

8. 5th year (and beyond) PhD Committee Meeting

Starting in the Fall 2015 and continuing forward, all graduate students will be required to hold a meeting of their PhD committee during the first semester of their 5th year in residence, except if the student has already scheduled their PhD defense date by the end of the 1st semester of their 5th year. In addition, each graduate student will be required to convene a similar meeting of their PhD committee every subsequent year (1st semester) until they have a PhD Final Defense date set. The purpose of this meeting is to collectively plan a satisfactory end-game for each student's PhD studies with input from the student, their advisor, and the other committee members.

9. Seminar Requirements

Two seminars are required of every student.

a. The first seminar is part of your Chemistry 500 requirement. It must be presented prior to taking the Comprehensive Exam and during the first two years in enrollment. This seminar is given in one of the area seminar series. A written report must be prepared as a part of the overall requirement. See section 14c for additional information.

b. The second seminar will sum up the research that you have performed during your graduate career. The seminar is open to the public and constitutes the first part of the Thesis Defense (see Section 10).

10. Comprehensive Examination Requirement

A Ph.D. candidate may take the Comprehensive Examination after meeting the qualifying, course, and seminar (= English proficiency) requirements. The Comprehensive Examination must be scheduled at least three weeks in advance through the Chemistry Department Graduate Program Office.

The Comprehensive Examination should be taken within a student’s first five semesters of enrollment (not including summers) or within one semester after receiving a Penn State M.S. degree in Chemistry (see Section 13b for details). Students who do not take the Comprehensive Examination within the prescribed time period must petition the GCAC before the end of the first five semesters (excluding summers) of enrollment in order to request an extension. Petitions must include a reason for the delay and must be accompanied by a detailed letter of support/explanation from the thesis preceptor. Whereas there are many reasons to seek such a delay, not all carry the same weight and thus approval will not be automatic. In the past, requests based upon some variation of the theme, "I haven't accomplished enough yet" were not approved, even when they were accompanied by the strong backing of the thesis preceptor. This policy will continue into the future.

The Doctoral Committee administers the Comprehensive Examination. During the examination, the committee will review the candidate’s progress. The committee may
question the candidate on any topic relevant to obtaining a Ph.D. in Chemistry. To provide a framework for the examination, the candidate is required to:

a. Prepare and distribute to the Committee at least one week in advance a research report and description of future plans of not more than 10 pages (excluding references). This document should include (i) a brief Abstract (< 200 words), (ii) a Background and Significance section, (iii) a detailed description of Research Accomplishments to date, (iv) proposed plans for Future Work, and (v) a Reference section (not included in the page limit). The candidate should be prepared to provide a brief synopsis (20 – 30 minutes) of this report in the form of an oral presentation.

b. Prepare and distribute an original research proposal to the committee at least one week in advance. The proposal may be on any chemical (or chemically related) topic except that it may not be directly related to the candidate’s thesis research or to work being done by others at Penn State. The proposal should also be no more than 10 pages in length. The candidate should be prepared to present a brief (20 – 30 minute) oral presentation on the proposal.

Both of these reports should adhere to the following format: single-spaced, 12-pt font with 1” full-justified margins. The page limit includes all figures, graphics, etc., but does not include references. References should be presented at the end of the document in standard ACS format.

The format of the comprehensive examination typically will follow this sequence: Immediately prior to the examination, the committee will meet in the absence of the student in order to discuss issues related to the student’s exam. The committee will then choose the sequence of presentation for the two topics. Questioning will generally be related to the specifics of the topics presented. In addition, open questions used to judge the candidate’s general background knowledge in areas the committee feels appropriately related to the student’s course of research and study may be included. Following the questioning, the candidate will be asked to leave the room briefly while the committee discusses his/her performance. The candidate will then be called back to the committee to be informed of its decision (pass or fail) and to discuss the committee’s perceptions of the candidate’s areas of strengths and weakness and its recommendations for future scientific growth.

In the event that a student fails one or both sections of the Comprehensive Exam, the committee will recommend further action; there are checkboxes on the official Graduate School form that indicate "passed", "failed, retake", or "failed, no retake". If one or both portions of the exam must be re-taken, the committee will set a date for completion of the requirement, not to exceed 2 months after the original exam date. The formal Comprehensive Exam paperwork must be completed and returned to the Graduate Program Office regardless of the outcome of the exam. If the committee decides that the failed exam may not be retaken, then the student will be terminated from the Chemistry Ph.D. program (see Section 18 for details). In this latter circumstance, the student's Ph.D. committee may recommend the option of completing an M.S. degree.

11. Final Thesis Defense Requirements

The final thesis examination must be scheduled via the Chemistry Department Graduate Program Office three weeks in advance.

a. Each member of the Doctoral Committee is to be given a copy of the thesis at least two weeks in advance of the defense.
b. The defense begins with a seminar that is open to the public.

c. Following the public presentation, the Doctoral Committee questions the candidate in a closed-door examination.

Please note the following important deadlines: (1) The Final Thesis Defense must be completed within 6 years of passing the Comprehensive Oral exam. If you fail to do so, the Graduate School requires you to take and pass the Comprehensive Oral exam again. (2) There must be at least a 3-month gap between passing the Comprehensive Oral exam and scheduling the Final Thesis Defense.

12. Thesis Requirement

In addition to the Graduate School requirements, described in the Thesis Information Bulletin (http://www.gradsch.psu.edu/current/thesis.html), the Ph.D. and Masters candidate are expected to furnish their preceptor with one bound, high-quality copy of the thesis.

13. M.S. Degree Requirements

The decision to obtain an M.S. degree may originate with the student or with the student's preceptor or their Ph.D. committee. Graduate students may decide to change their official status from Ph.D. candidate to M.S. candidate if they decide that an M.S. degree better serves their career goals. This change requires official paperwork, and should be discussed first with your preceptor. Once you and your preceptor agree on an acceptable M.S. plan, please inform the Graduate Student Program Manager, who will process the paperwork with the Graduate School for you.

Graduate students who are not making satisfactory progress towards the Ph.D. degree in the judgment of the student's preceptor or their Ph.D. committee will be notified that they are at risk of being terminated from the Ph.D. program. Students in this circumstance may be asked to complete an M.S. degree as a method of evaluating whether they should remain on track for the Ph.D. degree. Successful defense of the M.S. degree in either circumstance includes meeting all of the requirements for this degree as detailed in the Graduate Bulletin. These requirements include:

(a) 30 graduate credits, at least 18 of which are at the 500-level or above
(b) A minimum GPA of 3.00 for work done at the University
(c) Passing a thesis examination

a. In addition to the University requirements listed above, the Chemistry Department has a set of requirements that must be met:

(a) The M.S. candidate must qualify in at least two areas.
(b) The M.S. candidate must complete five graduate-level courses as part of the 30 required units.
(c) The M.S. candidate must successfully complete Chem 500 (seminar attendance, SARI training, 1st-year meeting (Candidacy exam), 2nd year seminar).
(d) The M.S. thesis examination committee must consist of at least three members of the graduate faculty, including the thesis advisor.
(e) The M.S. thesis must be defended successfully within 1 year of the date of the request to defend the M.S. degree.
A final copy of the thesis and signature page must be turned into the graduate office located in 105 Chemistry Building. The Departmental signature page is generated by the Chemistry Graduate Program Office.

b. Students who pass their M.S. defense en route to a Ph.D. but who still have not yet passed their Comprehensive Exam must do so within **one semester (or summer)** following the semester (or summer) of their M.S. defense in order to remain on the Ph.D. track. A student in this situation may consolidate the two defenses (i.e., M.S. and Comprehensive Exam) by using the M.S. defense as the research report part of the Comprehensive Exam, provided that (1) they schedule the Comprehensive Exam **before the M.S. defense**, and (2) the student's Ph.D. committee administers the M.S. exam. Students should work closely with the Graduate staff assistant to ensure that all required paperwork associated with these exams is processed in a smooth and timely manner. In addition, students are permitted to include the Comprehensive Exam original research proposal defense at their M.S. defense if they so choose, thus completing both parts of the Comprehensive Exam during the M.S. defense. Otherwise, the student must schedule a second meeting of their Ph.D. committee and defend their original research proposal in order to complete their Comprehensive Exam. In either circumstance, the time limit stated above (one semester/summer past the M.S. defense semester (summer)) holds for completing all of the Comprehensive Exam requirements.

c. Please be aware that a student's Ph.D. study program may be terminated for cause at any time during their graduate career (see Section 18 below), but that action is completely independent of any request to defend an M.S. degree. In this rare circumstance, the official University procedures detailed in Section 18 must be followed.

### 14. CHEM 500 Requirements

All graduate students are required to enroll for 1 credit of CHEM 500, *Seminar in Chemistry*, during each semester of their first and second years in residency. This requirement contains four components: (1) scholarship and research integrity training (SARI), (2) a written seminar report during Orientation, (3) a first-year meeting (= Candidacy exam report and presentation), and (4) an oral presentation (= 2nd year seminar) accompanied by a written report.

**A grade of 3.0 (B) or better is required for each section of CHEM 500.**

**Grading Summary:**

Fall semester (1st yr) – You will receive a letter grade based upon (a) seminar attendance, (b) the seminar report that you write during Orientation, and (c) completion of the SARI online CITI training course.

Spring semester (1st yr) – You will receive a letter grade based upon seminar attendance and attendance for the required five SARI hours.

Fall semester (2nd yr) – You will receive a letter grade based upon the 1st year committee report.

Spring semester (2nd year) – You will receive a letter grade based upon your 2nd year seminar (written report and oral presentation), whether you gave your seminar in the Fall or
the Spring. If you receive less than a "B" grade, you will be required to redo the seminar until the minimum has been met (max 2 times).

a. **Scholarship and Research Integrity (SARI) Training Requirements:** Penn State University requires Scholarship and Research Integrity (SARI) training for all graduate students. This requirement is based on a set of guidelines developed through the Office of the Senior Vice President for Research and the Office for Research Protections (ORP). More details can be found at [http://www.research.psu.edu/orp/sari/](http://www.research.psu.edu/orp/sari/). The SARI training consists of two parts: (1) online (CITI) training offered through an external website (see below), and (2) five hours of discussion-based responsible conduct of research (RCR) training. There are specific deadlines for completion of both parts of this training, and if you fail to meet these deadlines, you will not be permitted to schedule your Comprehensive Exam.

The Department of Chemistry's SARI program requires all students to complete the online training offered through the Collaborative Institutional Training Initiative (CITI) program. Students in the Department of Chemistry must complete the CITI course for Physical Sciences and Engineering (PSR). **In their first semester of graduate studies, all students must complete the CITI course with a grade of 80% or higher (based on on-line quizzes) and will receive a certificate at the end of the course. This certificate must be filed with the Graduate Office in the Department of Chemistry no later than 4 PM on the last day of classes in the Fall semester.**

**To access the CITI course:** Students can register for Penn State's CITI courses at [www.citiprogram.org](http://www.citiprogram.org). Select "Pennsylvania State University" as the participating institution, and complete the rest of the enrollment information. On the "Curriculum Selection" page, choose the Physical Sciences and Engineering (PSR) course. Once you have registered, you may enter and leave the course at any time, completing modules as time permits. This training should be completed as soon as possible upon joining the program, and definitely by the end of your first semester. *Failure to complete this training will negatively impact your Chem 500 grade for the Fall semester. [Note that a "B" grade is required to remain in good standing in the Ph.D. program.]*

**Additional training requirements:** Several hours of discussion-based RCR education will be offered during the August Graduate Student Orientation program. Attendance will be taken, and all Chem 500 students are required to attend these sessions. If necessary, each student also will be required, as part of their Chem 500 course, to attend additional events (workshop, seminar, etc., held somewhere on campus, to be announced) in order to meet the 5-hour requirement during the first year in the program, and this participation will be counted towards the grade in Chemistry 500 during the first year. To receive credit for attendance, each student must sign an attendance sheet (for Departmental events) or otherwise provide proof of registration (for ORP or similar sponsored events). Progress will be monitored by the Graduate Program Office. Further details regarding these workshops, seminars, and other sessions will be available on the Chem 500 ANGEL site.

b. **Chemistry 500 Writing Tasks:** Writing skills are essential components of your professional portfolio. Developing these skills takes time and practice, and your Ph.D. preceptor ultimately will be responsible for providing this training. Chem 500 will give you opportunities to receive focused feedback on your developing writing skills.
The first opportunity will occur during Orientation: the writing qualifying exam (see Section 1). This writing qualifier is an attempt to give you some feedback on your writing skills in order to help you better prepare for your 1st-year candidacy exam. A faculty member will present a 50-min seminar, and you will be responsible for writing a summary of this seminar. Your efforts will be evaluated and graded by a professional English instructor and returned to you. Some of you will receive passing grades that will be recorded as part of your Chem 500 Fall semester grade. Others will be required to take the departmental technical writing skills course during the Fall semester (1 meeting a week for approximately 10 weeks), and the grade that you receive for this writing course will be part of your Chem 500 grade. The initial seminar reports should meet the following criteria:

(a) Format: 3 pages, 1.5-spaced, 12-point font, full-justified 1" margins. The page limit includes all figures/drawings, but not references.

(b) References in ACS format should be included – you will have to search the literature to locate appropriate references, depending upon the specific topic/presenter. To write an effective report you will find it helpful to refer to sources other than the notes you take during the seminar.

(c) Content: Your report should succinctly summarize the main points of the lecture such that the topic will be understandable to a chemist who did not attend.

(d) Within one week after the seminar, submit to ANGEL (CHEM 500 course, in a drop box with your name, report number and version) an electronic draft of your report with cover sheet. Late submissions will be accepted with a grade deduction related to the delay.

Potential preceptors will have access to your annotated/graded seminar reports. Thus, your (potential) preceptor will have an opportunity to evaluate your writing skills as part of the selection process.

c. Chemistry 500 Seminar details: As per University rules, "a candidate for the degree of Doctor of Philosophy is required to demonstrate high-level competence in the use of the English language, including reading, writing, and speaking, as part of the language and communication requirements for the Ph.D." The Chemistry 500 seminar will suffice to meet this goal if high-level competence as per the University requirements is demonstrated. Please plan your oral presentation and written report with these thoughts in mind.

The Chemistry 500 seminar must be presented prior to taking the Comprehensive Exam and during the first two years of enrollment. This seminar is to be given in one of the area seminar series. Students will choose a seminar topic in consultation with their preceptor. The topics may include either (i) your graduate research, (ii) a subject related to your graduate research, or (iii) a subject distinct from your graduate research. You then must inform Shari Miller (104 Chem Bldg) of your seminar title by August 30 for Fall semester seminars and by November 30 for Spring semester seminars.

Written seminar reports constitute the second venue to tune-up your writing skills and are due to the Graduate Program staff assistant for compliance check one week prior to the seminar date. If the report does not violate any of the criteria listed below, then you should distribute it to your committee immediately. If the Graduate Program staff assistant notes a lack of compliance (see below), you will have to correct it prior to
distribution. A seminar cannot be scheduled in either December or May due to grade submission deadlines. A grade of "B" or better is required before a student can schedule his/her Comprehensive Exam. Students failing to obtain the minimum grade must repeat the entire seminar requirement until the minimum grade is achieved (up to a maximum of two times).

Additional guidelines are:

1) The evaluating committee should be composed of two graduate faculty members, preferably from the doctoral committee. The preceptor should not participate in the committee.

2) The format of the written report should strictly follow these guidelines: maximum length, not including references, but including all figures, graphs, schemes, etc. ≤ 8 pages; 1.5 spaced, full-justified 1" margins, 12-point font. Reports not meeting these criteria will be returned for correction and not distributed for grading. References should be in ACS format at the end of the document.

3) The oral presentation should last 30 minutes with questions (25+5) to mimic a likely conference format.

4) The presentation and report must contain an element of critical analysis (rather than be limited to fact reproduction).

A copy of the grading sheet is available on ANGEL.

d. Seminar attendance: First-year (and more senior) graduate students are expected to attend seminars as part of their educational experience. For the first-year students, attendance will be taken, and participation in 15 seminars per semester is required. Seminar options include both in-house offerings and seminars in other Departments on campus. The Chemistry Department seminar choices span both the student seminars in the individual area programs and the Departmental colloquia on Thursday.

Students are encouraged to sample seminars in areas of their interest outside of the Department. Please discuss these options with your research preceptor; he/she may have particular Departments/seminars to suggest that are relevant to your training. Furthermore, students who have unavoidable conflicts with scheduled Departmental seminars should plan to meet their 15-seminar requirement with outside-of-the-Department opportunities. Please check the Graduate Program Web site (Policies and Procedures) for updated availability of outside-of-the-Department seminars, and for the attendance verification procedures for these seminars.

Failure to meet this attendance goal will result in a drop of one letter grade (i.e., A to A–, 0.33 GPA points) in Chem 500 (per semester basis) for every seminar missed.
POLICIES AND PROCEDURES

15. Preceptor Selection

The preceptor selection process works as follows: Students are required to talk to at least five graduate faculty members about their research program and obtain their signatures on the preceptor signature form, which will be due the first week of November (the form will be distributed by the Graduate Office to all students in September). You are certainly encouraged to talk to as many faculty members as you wish – you only need five signatures. The introductory talks during orientation do not count as talking to a faculty member. From the list of all faculty members you’ve met with, choose the top three with whom you would like to work and list them on the sheet that you turn in to the Graduate Student Program Manager. This ranked list should express your preferences, and you should feel comfortable with the prospects of working in any of the faculty members’ groups that you list.

LABORATORY ROTATION PROGRAM: We have a lab rotation program that offers students the opportunity to engage in ~1-month rotations in participating faculty laboratories for September and October. You will receive a list of participating faculty during Orientation. This program is informal at present, and you should contact directly those faculty members in whose labs you would like to work. Not all faculty can accept all requests, so please plan accordingly with 2nd and 3rd choices.

There are many exciting research opportunities, so please remain flexible as to your top preceptor choices. Please keep in mind that you may choose a preceptor in another department (i.e. Materials Science, BioEng, etc.). However, if you choose a faculty member outside the Chemistry Department as your primary preceptor, they are expected to financially support your research until the completion of your Ph.D. In this circumstance, the Chemistry Department cannot guarantee more than 2 semesters of post-1st-year TA support for you during the entire course of your PhD degree. Note that there are no TA positions available over the summer. So, you will have to make sure that the faculty member can support you for most of your PhD training. In addition, the Graduate School requires that you have a formal co-advisor from the Chemistry Department, so please make sure that you include this person on your PhD committee. This Chemistry faculty co-advisor is not required to bear any financial responsibility for you. Please notify the Graduate Student Program Manager if you intend to pursue this option. You will be responsible for completing all Chemistry Departmental requirements for the Ph.D. degree and ultimately you will obtain your Ph.D. in Chemistry.

The Graduate Program staff will consult with the faculty and make the best possible matches. After the decisions have been made, you will be notified via email that the preceptor assignment notices are in your mailboxes in 104.

16. Yearly Graduate Student Evaluations

All graduate students will be given a brief annual review by their preceptor, using an evaluation form supplied by the Chemistry Program, by the end of July for each year of enrollment. Your faculty preceptor will be prompted at the end of May by the Graduate Student office staff of the need to respond to this requirement in a timely manner; nevertheless, it is the student's responsibility to acquire this form, present it to their
preceptor and/or set up a meeting with their preceptor to complete the evaluation jointly, and return the completed form to the Graduate Student Program Manager. This evaluation form can be downloaded from the Chemistry Graduate program Web site, under Policies and Procedures. Following the review, the preceptor and the student must sign the form. The signed form must be turned into the Graduate Student Program Manager by no later than July 31. The Graduate Student Program Manager will monitor compliance and forward these completed evaluations to the Graduate School for each year.

This evaluation form has a section that allows the student and the preceptor to express their concrete goals/expectations for the student's work during the coming year. This information can be exceedingly important in (a) providing a metric for future evaluations, and (b) defining a research endpoint towards the latter stages of a student's Ph.D. training. Please make sure that you take advantage of this opportunity as your Ph.D. studies enter their final stages.

Either the student or the preceptor can request a full Ph.D. committee meeting to discuss the evaluation.

17. Financial Support

a. Funding during the first two semesters of enrollment is provided by the Department typically through a Teaching Assistantship or through an individual fellowship from the University or from an outside source. Funding beyond the first two semesters can come from either Teaching Assistantships or Research Assistantships through individual faculty members, so students are expected to be proactive in seeking out and maintaining funding for the remainder of their academic program.

b. Department policy limits financial support as a Teaching Assistant from Departmental funds to the first four semesters of graduate study for a M.S. degree candidate and to the first ten semesters of graduate study for a Ph.D. degree candidate. Financial support beyond these periods should be obtained from other than Departmental funds (e.g., research assistantship funded from a faculty member’s research grant). However, your PhD mentor can request a 6th-year TA line for you if circumstances warrant it. This request, signed by both you and your preceptor, should be submitted to the Graduate Student Program Manager and will be evaluated by the GCAC. The request should describe (a) precisely what you still need to accomplish to be awarded a PhD degree, and (b) when you will be done with this work and can defend your PhD thesis. A 6th-year TA request that describes a plan with a PhD defense date by the end of the first semester of the student's 6th year will be given serious consideration; requests for a TA position with a more nebulous plan, or one with a defined end point later than the end of the first semester of the student's 6th year, may be returned for revision. Support from Departmental funds is conditional upon successful pursuit of a degree program and conscientious performance of teaching responsibilities.

18. Chemistry Department Policies and Penn State Policies Regarding Changes in a Ph.D. Student's Status

A graduate student who successfully completes the Candidacy Exam (= 1st year meeting, GPA > 3.00) is admitted into the Ph.D. program. As per Graduate School policy, that status only can change through completion of the Ph.D. degree or by termination of the student's
Ph.D. program for cause. This latter action is rarely contemplated, but all students should be aware of what "cause" means in this context, and the detailed procedures by which the termination process is initiated, and by which it can be appealed; see Appendices I, III and IV of the Graduate Bulletin (http://bulletins.psu.edu/bulletins/whitebook/appendices.cfm?section=appendix1, http://bulletins.psu.edu/bulletins/whitebook/appendices.cfm?section=appendix3, and http://bulletins.psu.edu/bulletins/whitebook/appendices.cfm?section=appendix4). Briefly, Appendix I refers to termination as a consequence of violations of the Code of Conduct, Appendix III describes termination for unsatisfactory scholarship, and Appendix IV details termination specifically of graduate assistantships for inadequate performance.

Apart from this termination action, the Chemistry Department has an internal procedure to address the uncommon and unfortunate occurrence of an unproductive match between student and Ph.D. preceptor. Under these circumstances, a change can be made. Students who wish to initiate this change should discuss the matter with the Graduate Advisor first. If a preceptor initiates this change, there is a formal procedure with appropriate paperwork that must be followed. The procedure involves the preceptor notifying the student in writing of (i) their expectations, (ii) why/how the student is not meeting those expectations, (iii) what the student must do to meet those expectations, (iv) a time line for meeting those expectations, and (v) the consequences for not meeting those expectations. Both the preceptor and the student sign this memo. One consequence might be dismissal from the preceptor's research group. If a student is so dismissed, they remain in the Ph.D. program, but they must seek a new research preceptor. Reasonable progress toward an advanced degree cannot be made if a student is not working with a preceptor or participating in a specific research group. Students in that circumstance for a protracted period may be in jeopardy of termination (see above) from the Chemistry Graduate program. These situations occur but rarely, and they are handled on a case-by-case basis by the Graduate Advisor.

19. Standards of Conduct

By virtue of their maturity and experience, graduate students are expected to have learned the meaning and value of personal honesty and professional integrity before entering the Graduate School. Every student is expected to exhibit and promote the highest ethical and moral standards. A violation of such standards is regarded as a serious offense, raising grave doubt that the student is worthy of continued membership in the Graduate School community. The University Code of Conduct is found in Appendix I in the Graduate Degree Program Bulletin (http://bulletins.psu.edu/graduate/generalinformation/genInfo7). Violation of the Code may result in suspension or dismissal from the academic program and/or from the Graduate School. For additional information, please go to www.sa.psu.edu/ja.

20. Conflict Resolution

If you find yourself in conflict with another member of the Department, including another graduate student, a staff member, or a faculty member, we offer two avenues of conflict resolution: (1) Informal: The Graduate Advisor (Ken Feldman) and the Graduate Student Program Manager (Dana Coval-Dinant), working together, will listen to your concerns in strictest confidence and plan with you a way forward to resolve the conflict. (2) Formal: The Eberly College of Science offers an ombudsman program in which neutral third parties
meet with you, again in strictest confidence, and attempt to plan a way forward. The current Chemistry Department ombudsmen include Professor Pshemak Maslak, and Drs. Jackie Bortiatynski and Mary Shoemaker. We encourage you to pursue one of these options if you feel that you need our intervention.