

Department of Chemistry



Graduate Student Handbook

2016–2017

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1 INTRODUCTION

This handbook is a compilation of policies and procedures of the graduate chemistry program in the Clemson University chemistry department. It is meant to serve as a guide to help students (you!) as you make your way through the program. Note that this handbook does not cover all of the policies of the Clemson Graduate School; those policies are compiled in the Graduate Announcements, which is published each year by the Graduate School. Access to the Graduate Announcements is also available via the web at <http://www.grad.clemson.edu/> . You must follow both the chemistry department guidelines and the graduate school guidelines as you pursue your advanced chemistry degree.

The graduate chemistry program at Clemson University is administered by a graduate committee consisting of (usually) six members, including the graduate student coordinator, the graduate program coordinator, and at least one member from each departmental division. The individuals on the committee change annually; the composition for the current academic year is given below:

Composition of chemistry department graduate committee for 2016-2017

Dr. Bill Pennington, Chair, Graduate Program Coordinator
Dr. George Chumanov, Analytical
Dr. Julia Brumaghim, Inorganic
Dr. Dev Arya, Organic
Dr. Steve Stuart, Physical
Mrs. Heather Shelton, Graduate Student Coordinator

Usually, the first point of contact for students in the graduate program is the graduate student coordinator listed above. That person will handle the processing of all forms relating to the program, and can answer most questions about program policies and procedures. Students should feel free to contact the graduate student coordinator or any member of the graduate committee regarding questions or other issues relevant to the program. Few of the policies in this handbook are so inflexible that they cannot be modified if circumstances warrant; the starting point for such cases is to bring them up with someone on the committee.

Note that this handbook summarizes the policies and procedures that are/were in effect for the academic year specified on the front cover. Policies will stay generally the same over time but may evolve from one year to the next. Students will be notified of changes as they occur, but please be aware that this handbook is not a contract. If policies change in minor ways during a student's course of study, the student may be asked to work toward a degree under the new policies, in place of policies that were in effect when the student was admitted. For cases involving major policy changes, students will be allowed to work toward their graduate degree under the policies that were in effect when they were admitted. The graduate committee and the department chairman will consider cases in which a change in policy creates a hardship for a student on a case-by-case basis.

Aside from the formal policies, the graduate committee and the entire chemistry faculty and staff would like to take this opportunity to wish you every success in your journey toward a graduate degree. Graduate school is a time of intensive learning and professional development that will call upon the very best in you to achieve success; but, it is also a time of great personal development and growth that we hope you will look back upon with fondness. **Good luck!**

2 PROFICIENCY REQUIREMENTS

2.1 Chemistry Proficiency

Entering graduate students will take a series of entrance examinations at the beginning of the first semester of study. Four exams will be given, one each in the areas of analytical, organic, inorganic, and physical chemistry. These are standardized, multiple-choice exams, covering undergraduate-level material. Passing the exam indicates that the student has achieved proficiency in the subject area sufficient to continue taking courses at the graduate level. The exam results will not appear on the student's transcript.

The results of the placement exams are used to advise students regarding course selection. Students who pass an exam in a given area will normally be advised that they may immediately take graduate-level courses in that area. Students who do not pass an exam in a given area may be advised to take a remedial class to address the lack of proficiency before enrolling in graduate classes in that subject area.

2.2 English Language Speaking Proficiency

Newly-admitted graduate students who are not native English-speaking students are required by South Carolina state law to pass an English speaking exam (the CESP test) before they can be certified to teach as a laboratory teaching assistant. The Clemson English department administers the exam, which is similar in form to the Test of Spoken English administered by ETS. The exam is offered at the start of the fall and spring semesters, and once near the end of the fall semester. Students may take the exam anytime that it is offered. It is expected that students will pass this exam during the first year of study. *If a student does not pass the exam by the end of the first year of study, then that student is not eligible for department support, and may be asked to leave the program.*

Once a student passes the English speaking exam, they become eligible to serve as a teaching assistant in one of the undergraduate laboratory courses. The student would then receive the same stipend as all other students who are teaching lab sections. In most cases, the stipend that students receive before they pass the English exam and become certified to serve as a teaching assistant is lower than the stipend received by students who do teach laboratory sections.

3 ADVISEMENT

3.1 Initial advisement

Entering students will normally be advised by the graduate committee in an advising session to be held after the entrance exams have been completed but before classes begin. The main

purpose of the initial advising session is to select coursework for the first semester of study. Students should come to the advising session prepared to discuss what courses they would like to take in the first semester. After the advising session, students will complete registration for the first semester. Academic advisement for subsequent semesters will usually be performed by the student's research advisor.

3.2 Selection of a Research Advisor

Your selection of a research advisor is a very important decision to which you should give much thought. It will strongly affect the course of your graduate studies and your professional life. Each research group in the department is unique, and it is to your benefit to be as open-minded as possible at the start of your program of study as you consider your interests and options.

The following paragraphs specify the procedures followed in the Clemson University chemistry department for student selection of a major research advisor. The procedures may vary from year to year, but will always be generally similar to those presented below.

Upon selection of a major area of interest, you will be given a sheet (Attachment I) with the names of all faculty in the department. Just before or shortly after the beginning of the fall semester a series of sessions will be held, during which faculty will make brief presentations about their research programs and answer questions about their research groups. A schedule for these sessions will be distributed before they occur. It is expected that all entering students will attend all of these faculty seminars, including students who have entered in the previous semester, or who have already committed to joining a particular research group. These presentations are intended not only for the purpose of selecting a research group, but also for introducing you to the variety of research conducted in the department. **Attendance is required.**

After all of the faculty presentations have been made, students should make individual appointments with several faculty members for a more detailed discussion/interview about their research programs. Each student must meet with at least three faculty members, independent of divisional affiliation. Students are strongly encouraged to meet with more than three faculty, especially if there are multiple faculty whose research interests matches that of the student. The interviews are required even for those students who already think they know which faculty member they wish to choose as their advisor, as they are designed to ensure that each incoming student has a good knowledge of research being conducted by a variety of groups within the department.

Students beginning study in the spring semester should begin the process of meeting with individual faculty as soon as possible after the start of the spring semester. These students are required to attend the faculty research presentations in their second semester, so that they are acquainted with the research activities in the department.

The initial faculty interviews may occur, in many cases, with faculty members that the student may or may not be seriously considering as a research advisor. Before choosing a research advisor, however, students are expected to have a more in-depth conversation with the potential advisor(s) about what will be expected of them. Expectations of students are different in different research groups, and it is crucial that students be aware of these expectations when joining a research group.

After the faculty interviews are completed, students will complete a form (Attachment II) indicating their top three choices for major research advisor. It is expected that the student will have discussed these plans with each of the three faculty members that they identify, as not all faculty will be able to accept new research students in every semester. The form is submitted to the graduate program office. The student will then be matched with their highest choice that is consistent with department requirements for research groups. Choice of a research advisor is not official until authorized by the research advisor, the graduate program, and the department chair. Official approval will be granted as soon as possible once student selections have been made, but before the end of the first semester.

3.3 Advisory Committee

In addition to the research advisor, all students are required to have an advisory committee. This is a committee of at least three (for MS) or four (for PhD) faculty that is responsible for approving the plan of study, supervising the progress towards the degree, and administering both the comprehensive oral examinations and the final thesis or dissertation defense.

The advisory committee should be selected by the end of the third semester of study. This selection is done using the Plan of Study (GS-2) form; see section 4.6 for more details.

The advisory committee will meet periodically with the student to assess the student's progress towards the graduate degree. These meetings can occur in the form of an informational progress meeting, or a formal examination such as the comprehensive oral exam or the final thesis or dissertation defense.

4 PROGRAMS OF STUDY

4.1 Overview

The Clemson chemistry department offers programs of study leading to the M.S. and Ph.D. degrees. Each degree program has specific requirements in terms of coursework, student seminars, qualifying examinations and comprehensive exam (Ph.D. only), and a thesis (M.S.) or dissertation (Ph.D.) that presents the results of an original research project. It is possible (and common) to earn a Ph.D. degree without stopping to earn an M.S. degree on the way. It is also possible to earn only an M.S. degree, to first earn an M.S. degree en route to a Ph.D. degree.

The following sections summarize chemistry department policies as they relate to the programs of study for the M.S. and Ph.D. degrees. The Clemson University Graduate School also has policies that relate to programs of study for these degrees. Graduate School policies are summarized in the Graduate Announcements, available online at <http://www.grad.clemson.edu/>. By University policy, full-time status is defined as being enrolled in 9 credit hours in the fall and spring semesters and a total of 6 credit hours in the summer session(s).

4.2 Curriculum

The curriculum requirements differ substantially for the M.S. and Ph.D. degrees. The M.S. degree requirements are primarily designed to ensure that a sufficient amount of graduate

coursework is completed. The coursework requirements for the Ph.D. degree are more rigorous, requiring that the student take courses or pass exams in the core areas of chemistry, in their focus area, as well as in areas outside of chemistry. Both programs are sufficiently flexible to allow the student and their research advisor to construct a curriculum that matches the student's research emphasis.

4.2.1 M.S. Curriculum

Coursework. Students pursuing a M.S. degree in any field at Clemson University must complete a minimum of 24 hours of graduate credit and six hours of master's thesis research (8910). Graduate classes at Clemson are classes offered at the 6000 level, 8000 level, or 9000 level. A 6000-level class that has a 4000-level counterpart that is required for the undergraduate degree, i.e. CH 6110, cannot be used towards the M.S. degree. At least one-half of the total graduate coursework credit hours required by the committee must be in courses numbered 8000 or above, and at least 12 credit hours must be in the major field of study, as required by the Graduate School. Up to three credits (but no more than three credits) of seminar classes, e.g. CH8510 and CH8520, may be counted toward the required total of 24 credit hours of coursework.

Transfer credit. Students may transfer up to 8 hours of graduate-level coursework completed at other institutions towards their M.S. degree. In order for these courses to be formally transferred to the Clemson University transcript, an official transcript from the previous institution must be sent to the Office of Enrolled Student Services, 104D Sikes Hall.

4.2.2 Ph.D. Curriculum

Coursework. Ph.D. students must complete a total of at least 60 hours of graduate credit, including at least 18 hours of Ph.D. research. Students must also complete graduate lecture coursework subject to the requirements outlined in the sections below on Broad Chemical Awareness, Focus Area, and Distribution Requirement. Additionally, within the first year of enrollment, the student must complete at least 18 graduate credits counting towards the Ph.D. degree. These credits include seminars but do not include graduate research. They also may not include 6000-level classes for which the companion 4000-level course is required for the undergraduate major: CH 6110.

All required coursework must be completed by the end of the third year of full-time graduate study (although additional courses may be taken after the third year).

Broad Chemical Awareness. By the end of the first year of study, the Ph.D. student must display competency in each of the four traditional areas of chemistry (analytical, inorganic, organic, and physical chemistry) in order to demonstrate a well-rounded foundation in chemistry.

This competency can be demonstrated in any one of four ways:

1. Passing the entrance exam in that subject area with a score of at least the 50th percentile when compared to the national average. If the entrance exam is passed upon arrival, no further action is needed. These exams are offered three times per year, in August, January, and May. No more than three attempts are permitted in any subject area.

2. Completing a two-semester sequence of the undergraduate 2000- or 3000-level courses in the subject area that are required for the undergraduate major, with a grade of B or better in both semesters. Courses satisfying this requirement are:
 - i. Organic Chemistry - CH2230 & CH2240
 - ii. Physical Chemistry - CH3310 & CH3320
 - iii. Such courses are unavailable in Analytical or Inorganic chemistry.
3. Completing any 6000-level course in the same subject area as the entrance exam, with the exception of CH 6270, with a grade of B or better. Such courses are available in all four traditional areas of chemistry. These courses may be used for graduate credit, when allowed by Graduate School rules (i.e. except for CH6110, which has a corresponding 4000-level course that is a requirement of the undergraduate degree).
4. Completing an identified 8000-level or 9000-level course in the subject area with a grade of B or better. (Note that these courses may simultaneously satisfy the focus area or distribution requirements; see below.). Courses satisfying this requirement are:
 - i. Analytical Chemistry - CH8120, CH8130, CH8140, CH8150, CH8160, CH8180 & CH9100
 - ii. Inorganic Chemistry – CH8050, CH8070 & CH8080
 - iii. Organic Chemistry - CH8210 & CH8220
 - iv. Physical Chemistry - CH8300 & CH8370

Note that multiple attempts to demonstrate a minimal competency are permitted. Thus, for example, a student earning a C in an 8000-level course would not demonstrate minimal competency. However, the student could still re-take the entrance exam and score at the 50th percentile or higher, perhaps aided by the material studied in the 8000-level course.

If the entrance exams are not passed at the 50th percentile upon arrival, the student should consider their course of action very carefully to ensure that they meet the broad chemical awareness requirement by the end of the first year. Note that some courses (especially 8000-level courses) are not guaranteed to be offered every year and may have prerequisites, and some subject areas do not have courses at the 2000 or 3000 level. To avoid unforeseen problems, it is crucial that the student plan their curriculum in conjunction with their academic and/or research advisor.

At the end of 12 months of study, students who have failed to meet the Broad Chemical Awareness requirements will be removed from the graduate program, and are ineligible to transfer to the M.S. degree program.

Distribution Requirement. The Ph.D. student must take an 8000- or 9000-level course in at least three different subject areas.

Graduate courses taken in other departments may count towards the distribution requirement. However, you must receive approval from the graduate committee that the course is eligible for the distribution requirement before enrolling.

Focus Area. Students take additional coursework as appropriate for their individual research programs. A minimum of four such focus area courses carrying graduate credit must be taken,

only one of which may also be counted for the distribution requirement. (Note that CH 6110 does not carry graduate credit, as its 4000-level counterpart is required for the undergraduate major.) These courses can be in any area, and should be chosen by the student and his or her research advisor based on the student's research program.

Transfer credit. Students in the Ph.D. program can use graduate courses taken elsewhere to fulfill curriculum requirements for the Ph.D. degree. In particular, coursework taken elsewhere can be used, with the approval of the graduate committee, to satisfy the 18-credit requirement for the first year; the broad chemical awareness requirement, the distribution requirement, and the focus area requirement. These courses must be approved by the chemistry graduate program, using the Petition for Course Substitution Form (see §7). This approval suffices to allow the external courses to be used to satisfy the curriculum requirements. If the transferred courses are to be listed on the student's GS2 form (which is not typically necessary), an official transcript must be sent to the Office of Enrolled Student Services, 104D Sikes Hall.

4.3 Non-Chemistry Courses

Most classes taken to satisfy the coursework requirements for a graduate chemistry degree will be those offered by the chemistry department. Credit received for graduate-level courses taught by other departments may also be counted toward a chemistry graduate degree, provided those classes involve subject matter that is directly relevant to the student's degree program. The student should consult with and receive approval from his or her major research advisor before taking such classes with the intention of having them count toward a graduate chemistry degree.

Students may also take other Clemson courses for credit during their graduate program, though normally such classes will not be counted toward the graduate degree. A student supported on either a research or a teaching assistantship MUST obtain approval from his or her research advisor prior to taking any such class while working toward a graduate chemistry degree.

4.4 Grade Requirements

MS students receiving grades of C or below in 9 or more credits worth of graduate coursework at Clemson University (for example, grades of C in three 3-credit lecture courses) will be ineligible to continue in the MS program. This includes any coursework taken in the PhD program prior to transferring into the MS program.

PhD students receiving grades of C or below in 6 or more credits worth of graduate coursework at Clemson University (for example, grades of C in two 3-credit lecture courses) will be ineligible to continue in the PhD program. This includes any coursework taken in the MS program prior to transferring into the PhD program. Such students will be permitted to transfer to the MS program, if they meet the academic requirements of that degree program.

Students who fail to maintain a 3.0 grade point average in graduate coursework will be placed on academic probation by the Graduate School, and will be ineligible for graduation until their GPA is above 3.0. When on academic probation, students will have nine additional semester hours of graduate credit in which to remediate their GPA, or they will be subject to dismissal from the university.

Students on academic probation will be considered not to be making adequate progress towards their degree, and will be required to meet with the department chair, graduate program advisor, and research advisor to discuss their plans for meeting program requirements.

4.5 Research Requirement

Ordinarily, both M.S. and Ph.D. students will spend a significant portion of their time doing chemistry research. The graduate school requires a minimum of 18 hours of research (CH9910) for a Ph.D. degree and 6 hours of research (CH8910) for a M.S. degree. Typically students will take significantly more research hours than these minimum amounts, as the degree requirements are based on finishing a comprehensive research project and thesis or dissertation, rather than a fixed number of credits. The research topics are chosen in conjunction with the research advisor.

4.6 The GS-2 Form

The coursework plan for both the M.S. and Ph.D. degrees is specified on a Graduate School form called the GS-2 form. Students should complete a GS-2 form as soon as they have formulated the coursework plan that they intend to pursue for the graduate degree. Normally, the coursework plan is formulated in consultation with the major research advisor. All students must file a GS-2 form by the end of the third semester of study, indicating all graduate courses to be taken to satisfy the degree requirements. The Graduate School has the right to block registration by students that have not filed a GS-2 form on time. If changes are made to the plan of study after the GS-2 form is filed, a modified GS-2 form should be submitted to the Graduate School.

At the time of filing of the GS-2 form, the student will also select members of his/her degree advisory committee. Normally, in the case of an M.S. student the committee will consist of the research advisor and two other members of the faculty. For a Ph.D. student, the committee will normally consist of the research advisor, one faculty member in the student's major area, one in each of the minor areas (if any), and one or two additional faculty members as needed to complete the committee of four.

Students who have not selected a committee by the end of their third semester of study will be considered not to be making adequate progress towards their degree, and will be required to meet with the department chair, graduate program advisor, and research advisor to discuss their plans for meeting program requirements.

Committee members not employed by the University may serve if they have been appointed to an adjunct faculty status. Please see the Graduate Student Coordinator for details regarding the appointment process.

Whenever a change occurs in the composition of the student's advisory committee, a new GS-2 form must be filed (examples: upon the advisor's recommendation, a student needs to add or replace a committee member; a committee member leaves Clemson University, etc.) The final version of the GS-2 form must be received by the Graduate School several months before graduation; specific deadlines are announced in the "Graduate Announcements" and at <http://www.grad.clemson.edu/deadlines.php>.

4.7 Student and Department Seminars

All chemistry graduate students are expected to attend the weekly departmental seminars and student seminars. Under normal circumstances students will register for one credit each of the student seminar (CH 8510) and departmental seminar (CH 8520) courses each semester. Attendance in both seminar courses is required; attendance will be taken, and grading reflects attendance and participation. In situations where lab teaching responsibilities conflict with seminar attendance, attendance at seminars is waived. Students should not be assigned to labs that conflict with seminar courses more than once.

Graduate students are also required to give a number of departmental student seminar presentations; these are commonly given within the context of the graduate student seminar course (CH 8510). Two credits are awarded in CH 8510 rather than one, in semesters in which a seminar is presented as part of the course.

Graduate students must present one seminar before the end of their 4th academic semester, and another before the end of every third semester afterwards. One of these talks must be a literature talk. The final thesis or dissertation defense may (optionally) count as one of these seminars, if presented as a public (open) defense. The research proposal given in association with the PhD oral examination **may not** count as a public seminar.

Thus, typically, students will give a literature presentation in their 4th semester. Students (mainly MS) who graduate in 3.5 years or fewer will give this literature seminar and their final defense. Students who graduate in 5 years or fewer will give an additional seminar, typically a research update, in their 7th semester as well as their final defense. Students who graduate in 6.5 years or fewer will give an additional research update in their 10th semester.

Abstracts for all seminar presentations should be distributed to the entire department at least one week in advance of the seminar, regardless of whether the seminar occurs as part of the graduate student seminar course or a defense. The division, date, time and location for the seminar must be included in the abstract.

4.8 The Qualifying and Comprehensive Examinations

Two major steps on the way to earning a Ph.D. degree are the qualifying and comprehensive examinations. Passing the qualifying exam qualifies you to attempt the comprehensive exam. Passing of the comprehensive examination enables the student to be admitted to Ph.D. candidacy. In general, successful completion of these exams marks a transition from the more formal phase of the degree program involving coursework and the beginnings of a research project to the more informal but in many ways more important phase involving intensive pursuit of an independent research project.

The qualifying examination consists of a series of written exams – the cumulative examinations. The comprehensive examination takes the form of an oral examination and defense of a written proposal.

4.8.1 Cumulative Examinations (Cumes)

Cumulative examinations are given eight times per academic year (approximately one per month) in each of the traditional areas of chemistry: analytical chemistry, inorganic chemistry, organic chemistry, and physical chemistry. The exams are three hours in duration, and all four topical exams are offered concurrently. Students may take any of the topical examinations that they wish, but may only take one exam during a given examination session.

Each exam is graded out of three points. A total of ten points is required in order to pass the cumulative exams. The distribution of points across the four topical areas must meet the requirements specified by the research advisor. This distribution is specified at the time that the student joins the research group on the form titled "Cumulative Examination Point Distribution"; see the Appendix.

Students may begin taking cumulative exams as early as the first semester of graduate study. The cumulative exams must be completed by the end of the sixth semester of full-time graduate study. If the requisite ten points are not obtained by the end of the sixth semester, the student will be deemed to have failed the cumulative examinations, and will have failed to qualify for the Ph.D. degree. Individual research advisors may also require that students complete the cumulative examinations on a more accelerated schedule as a condition of remaining in that research group.

In the event that a student switches from an M.S. degree program to a Ph.D. degree program, any points earned on cumulative exams while a M.S. student may be used towards passing the cumulative exam requirement for the Ph.D. degree. In such an event the student will have two years from the time of starting the Ph.D. program to obtain the remaining points required to pass the cumulative exams. If a student fails to pass the qualifying exam, however, the points from cumulative examinations may not be carried over if the student is ever readmitted to the Ph.D. program.

The dates of the cumulative examinations are announced well in advance. Topics and reading assignments for the cumulative examinations may be announced in advance, depending on the emphasis area.

Analytical

The purpose of the analytical cumulative examinations is to test broad knowledge of fundamental principles of analytical chemistry and to serve as preparation for successful graduation with the PhD degree. The examination is based on 95 questions which can be seen at the link:

<http://www.clemson.edu/science/departments/chemistry/documents/AnalyticalCumeQuestions.pdf>

These questions are provided in advance of cumulative exams to give students guidance for self- or team-studying and mastering the knowledge of analytical chemistry. It is not expected that students will approach faculty to check answers, or to have faculty provide answers. Each exam will have 5 questions randomly selected from the list. Because of the random nature of selecting questions for each exam, some questions may appear again on subsequent exams. The answer to

each question will be graded on a 20% scale and the total percent will be calculated by adding the individual percentages. Points will be awarded according to the following scheme: *less than 50% - 0 points; 50% to 59% -1 point; 60% to 74% - 2 points; 75% and more – 3 points*. These points will count towards the total of ten (10) points required to pass the Cumulative Examination.

Inorganic

The purpose of the inorganic cumulative examinations is to provide a mechanism for having graduate students develop a habit of reviewing the recent literature in the field of inorganic chemistry as well as the fundamental or basic knowledge underpinning those recent advances.

Topics for each inorganic cumulative examination will be announced by e-mail one week prior to the scheduled exam. The exam will consist of general knowledge and literature questions, and specific details of the grading format will be provided on each exam. After a student completes the written cumulative examination requirement, he/she must arrange to take the preliminary oral qualifying exam in the next full semester.

Organic

The purpose of the organic cumulative examinations is (1) to promote the acquisition, retention and ability to retrieve a working body of chemical knowledge; and (2) to demonstrate sufficient sophistication in chemical knowledge and reasoning for admission to PhD candidacy. The organic chemistry cumulative exams consist of three sections: literature, general, and review. No more than five points from any one of the three sections may be counted towards the ten points used in passing the cumulative exams.

Each examination shall contain two questions consisting of a General Question and a Literature Question or Topical Question wherein the latter two questions revolve between exams on an alternating basis. At the discretion of the faculty member writing the exam question, the Literature Question may be taken from a single paper, a thematic issue, or a collection of papers on a similar topic (e.g., synthetic methodology, materials science, photochemistry, etc.). A topical area will be assigned (e.g., cuprate chemistry, carbenes, olefination, DNA conjugates, photovoltaics, etc.) outside of the examiners specific research area and textbooks or a series of review articles may be listed at the discretion of the examiner. Up to one and a half points may be awarded for each question on a scale where 50-74% = 0.5 pts, 75-89 = 1.0 pts and $\geq 90\%$ = 1.5 pts.

Physical

The purpose of the cumulative examinations is to provide a mechanism for the student to demonstrate the ability to acquire fundamental knowledge of physical chemistry — including thermodynamics, statistical mechanics and quantum mechanics — sufficient for progressing to an oral defense of their research proposal.

Exam topics and format are chosen at the discretion of the examiner and are announced two weeks prior to the cumulative exam. Specific details of the grading protocol will be spelled out at the beginning of each exam.

4.8.2 Oral Examination

After passing the cumulative examinations, the student will take an oral examination. This oral examination should occur before the end of the first full semester immediately following the successful completion of the cumulative examinations. Requests for exemptions from this schedule are to be made in writing to the graduate program coordinator. In cases where the cumulative examinations are completed unusually early (e.g. in the first year), it is acceptable to delay the oral examination until some preliminary research results are available. In most cases, the oral examination should be attempted before the end of the third year, and in no event should the oral examination be delayed beyond 3.5 years into the PhD program.

Students who have not completed the oral examination by 3.5 years into their graduate studies will be considered not to be making adequate progress towards their degree, and will be required to meet with the department chair, graduate program advisor, and research advisor to discuss their plans for meeting program requirements.

Successful completion of the oral examination will admit the student to candidacy for the Ph.D. degree. In the event that the student fails the oral examination on the first attempt, the student will be allowed one opportunity to retake the oral examination. This second attempt must occur before the end of the first full semester following that in which the first oral examination was attempted.

As part of the oral examination, the student must prepare a brief written research proposal. The student should consult with the research advisor regarding the content of the written report, as this varies between different research groups and emphasis areas. The report may comprise a proposal for the research to be conducted for the Ph.D., in which case it will summarize the basic elements of the student's research project, report on the progress to date, and present a research plan for the remainder of the dissertation research. Alternatively, the report may consist of an original research proposal, on a topic unrelated to the student's dissertation research. The oral examination itself will consist of an oral presentation by the student summarizing the written report, followed by a question and answer session. The emphasis will be on the fundamental science underlying the topics in the report, knowledge within the student's major field of study, and the student's capability to pursue independent research at the PhD level. The examining committee will consist of the student's Ph.D. dissertation committee.

Upon successful completion of the comprehensive (oral) examination, the student should file a completed GS-5 form, to be signed by all the committee members, with the Graduate School. Upon passage of the comprehensive exam and filing of the GS-5 form, the student is admitted to candidacy for the Ph.D. degree.

4.9 Scientific Communication Requirements

Communication and dissemination of research results is a critical part of professional scientific research, and also a crucial part of your graduate training. Consequently, we require that all PhD students have at least one research publication and one research presentation by the time of graduation, as described below.

4.9.1 Publication requirement

All PhD students must have at least one peer-reviewed original research publication before graduation. The student must be the primary contributor to the research described in the publication. This is normally indicated by first- or second-author status on the publication. In cases where the student is the primary contributor but is not first or second author, a statement describing the contributions of the student to the research should be provided. Both published articles and those accepted for publication are acceptable. Manuscripts merely submitted or in preparation are not acceptable. If a manuscript has been reviewed but not accepted at the time of the defense, the student may provide the manuscript **and** reviews to the dissertation committee in order for them to judge whether the work is likely to be published.

More than one publication is certainly permissible, and encouraged! Most students publish several papers before graduation. Every publication strengthens your research expertise, technical writing skills, and curriculum vitae, and will help you find a job and succeed as a research scientist.

Students should plan on submitting manuscripts for publication well before their planned graduation date; the review, revision and publication process can be slow at many journals, sometimes requiring six months or more.

4.9.2 Presentation requirement

All PhD students must present at least one extramural research presentation, in either oral or poster format, before graduation. Common venues where graduate students deliver research presentations include SERMACS, national ACS, APS, MRS meetings and PittCon, although the specific venue is not important. The presentation can be contributed or invited, oral or poster. The student must be the presenting author, and the presentation should be delivered at an extramural scientific meeting (conference, workshop, etc.) attended by a scientific community relevant to the student's research, and should provide an opportunity for discussion. In cases where it is not certain whether a particular venue would qualify, the student should consult with his or her advisory committee, which is responsible for certifying that the presentation requirement has been satisfied.

More than one research presentation is certainly permissible, and encouraged. Most students make a number of research presentations before graduation. Every presentation provides additional public speaking experience and exposure for the research results, both of which are valuable in post-graduation research endeavors and job-seeking.

In the majority of cases, the travel costs to attend and present research results at extramural conferences are funded from research grants. In some cases, students make use of student travel grants or awards provided by external sources, or by the Chemistry Graduate Student Organization. Many students also defray a portion of the travel expenses themselves. However, to avoid situations where a student is prevented from graduating for purely financial reasons, students for whom the presentation requirement presents a financial hardship can apply to the department for assistance in defraying travel costs when giving a presentation in order to meet this requirement.

Students should take care to plan and schedule their research presentations well in advance of their anticipated graduation date; many conferences have deadlines of as much as six months before the conference date.

4.10 Progress Meetings

All MS students must hold a research progress meeting with their advisory committee in their 7th semester of study (not including summers) and in every semester thereafter. All PhD students must hold a research progress meeting with their advisory committee in their 11th semester of study (not including summers) and in every semester thereafter. A final thesis or dissertation defense can serve as the progress meeting. I.e., it is not necessary to have a progress meeting and a final defense during the same semester.

The purpose of these research progress meetings is to assess the student's progress towards graduation and determine whether reasonable progress towards the degree is being made. These meetings are mandatory for students in or beyond the 7th (MS) or 11th (PhD) semester of study so that possible problems are identified early for any students who are graduating in more than the average amount of time. But progress meetings may optionally be held earlier for any student. Some research advisors convene progress meetings at earlier dates for the purpose of keeping the advisory committee informed of the status of the research and soliciting their input. This is a positive interaction, and is encouraged. Thus, these progress meetings should not be viewed as punitive.

At the progress meetings, the student should present research results and a projected timeline for any future work that remains. This can be done in a variety of formats, including an oral presentation, brief written report, distribution of publications, or open discussion. The specific format of the meeting is to be determined by the research advisor and advisory committee, based on what they feel is required to assess the student's research progress.

These progress meetings are not examinations; the advisory committee is not asked to make a judgement on whether the student has passed or failed. Instead, these meetings provide an opportunity for the committee to provide feedback to the student on the rate of their research progress, and the reasonability of their plans for future progress. In cases where it is clear that the student is not making adequate progress towards the degree, however, it is reasonable for the advisory committee to inform the graduate program of this assessment.

The student should schedule and prepare for the progress meeting in each semester in which it is required. The graduate program office may send reminders to students as a courtesy, but it is the student's responsibility to meet this degree requirement. In a semester in which a progress meeting is required or desired, the student should discuss the format of the meeting with the research advisor and potentially the other committee members; prepare the materials needed for the meeting, if any; and arrange a suitable date and venue for the meeting.

4.11 The M.S. Thesis, Ph.D. Dissertation, and Final Defense

Both the M.S. and Ph.D. degrees in chemistry at Clemson are research-based. The central feature of the program of study is pursuit of an independent research project under the direction of a chemistry faculty member. For both degree programs, this project culminates in the preparation

and defense of a thesis (M.S.) or dissertation (Ph.D.) to be written by the student, which provides background material and summarizes the research project. Successful completion of the writing of this thesis or dissertation, and defense of the thesis or dissertation before the degree committee, is the capstone feature of both degree programs.

Some of the Graduate School's requirements for thesis or dissertation preparation and defense are given below:

- A final corrected and typed version of the thesis or dissertation must be given to each member serving on the degree committee at least three weeks before the oral defense.
- An oral defense of the final version of the thesis or dissertation must be presented to the members of the student's committee. This oral defense is open to members of the faculty, as well as members of the Graduate Committee and the Dean of the Graduate School. A majority affirmative vote of the committee members constitutes satisfactory fulfillment of this requirement.
- The Graduate School's guidelines for a thesis/dissertation, including an outline of the entire formatting and review process, are located at <http://www.grad.clemson.edu/manuscript.php>. A formatting template for students using Microsoft Word is also available at <http://www.grad.clemson.edu/Manuscript/format.php>

The oral thesis or dissertation defense consists of a presentation of the research described in the thesis or dissertation, as well as discussion and questions by the advisory committee members regarding the research presented in the thesis or dissertation. The advisory committee's verdict on whether the student passes the defense is based on their knowledge of the research field, his or her ability to perform high-quality research in the field, and his or her defense of the research performed.

The advisory committee is also responsible for verifying the publication and presentation requirement (see §4.9). At the time of the thesis or dissertation defense, graduate students must submit the following items to their advisory committee:

- A list of publications, including full citation, publication status, and narrative description of the student's contribution to the publication where needed
- A list of extramural research presentations
- The results of a turnitin.com or other plagiarism screening tool applied to the thesis or dissertation

Regardless of the acceptability of the dissertation and oral portion of the defense, the advisory committee will not approve the passing of the defense (via form GS7M or GS7D) until these items have been supplied.

Students are strongly encouraged to provide the publication and presentation information to the committee in the form of a curriculum vitae (CV). This document is necessary in order to apply for most jobs after graduation, and thus should have been prepared by the time of the defense. It provides all the information needed by the committee to assess the candidate's publication and presentation history, and the committee will also be able to volunteer feedback on the format, content, and likely viability of the CV.

The plagiarism screening is required in order to protect the student, advisor, committee, department, and university from the highly damaging consequences of plagiarism. The originality of the research is not the issue: this will be demonstrated by the student and assessed by the advisory committee in any successful defense. Instead, the screening tool is designed to aid in pointing out cases where other authors' words have been used without proper attribution. In cases where such plagiarism – whether intentional or unintentional – is not discovered until after the thesis or dissertation has been published, the legal and ethical consequences are far more severe.

The student is responsible for submitting the thesis or dissertation to turnitin.com or an equivalent plagiarism-screening tool. This can be done from the Blackboard course page for the CH 8910 or CH 9910 research course. Please see the graduate program coordinator if you need assistance using this tool.

In rare cases, such as when dissertations are embargoed to avoid public disclosure for intellectual property reasons, it may be preferable not to submit the document to turnitin.com or other external servers. In such instances, alternate arrangements must be made with the advisory committee to ensure that they have taken adequate precautions to detect intentional or unintentional instances of plagiarism.

4.12 Time Limits for Degree Programs

For students working toward an M.S. degree, the degree requirements must be completed by the end of the sixth year following the first semester of study. For students working toward a Ph.D. degree, the final defense must be completed within five years following the completion of the qualifying exam, as indicated by the filing of a GS-5 form.

The total time required to complete a graduate degree depends on the student and the research project. But the average time to complete a PhD degree in the department is slightly less than six years for PhD students. Taking more than six years to complete a PhD is generally considered undesirable. Students who have been in the graduate program for more than 6.5 years without receiving a degree will be required to meet with the department chair, graduate program advisor, and research advisor to discuss their plans for completing the degree.

4.13 Computer / Foreign Language Literacy and Competency

The chemistry department has no formal requirements for computer or foreign language literacy or competency. Competency in various software programs will be essential both in your teaching and research, and it is expected that students will acquire necessary skills to use these resources as needed. Workshops provided by the Clemson Computing and Information Technology (CCIT) and on occasion by the department are periodically made available to help students who need help to gain this competency.

4.14 Duplication of Degrees

The holder of a master's degree in a given field, received at another institution, may not become a candidate for another master's degree in the same field at Clemson. If a doctoral student who is a holder of an M.S. degree in chemistry fails the Ph.D. qualifying examination, then that student must leave the University without a degree.

4.15 Checklist and Sample Programs of Study for M.S. and Ph.D.

Summary/Check list of Departmental and Graduate School Requirements

First Year

- Take four placement exams
- Take CESP Exam-formerly known as the SPEAK test (international students only)
- Attend Faculty Research Presentations and select a research advisor by the end of the first semester
- Broad Chemical Awareness Requirement must be fulfilled
- PhD students must complete at least 18 hours of graduate credit (not including research or 6000-level classes for which the companion 4000-level course is required for the undergraduate major: CH 6020 and CH 6110)

Second Year

- Select a committee (complete and submit GS2 form) by the end of first semester of the student's second year of study
- Have and maintain a GPA of at least 3.00 by the end of the first semester of the second year of study. Students that fail to meet this requirement are dismissed from the PhD program.

Third Year

- All required coursework must be completed by the end of a student's third year (Distribution Requirement and Focus Area Courses)
- Complete cumulative exam requirement by the end of the student's third year of study.
- Semester following the completion of the cume exams is when a student should give their oral exam, unless the student completes their cumulative exams in an unusually short period of time. In any event, the oral exam should be attempted by the end of 3.5 years in the program or sooner.

Student and Department Seminars

- Students must register for student and department seminar each semester (unless assigned to teach lab during seminar).
- Ph.D. students are required to give three public talks (seminars), usually consisting of a proposal, literature, and final seminar.
- MS students are only required to give one public talk, which can double as a thesis

defense.

M.S. Requirements

MS students must complete a minimum of 24 hours of graduate credit and six hours of MS research. A 6000-level class that has a 4000-level counterpart that is required for the undergraduate degree, i.e. CH6110 cannot be used towards the M.S. degree. At least one-half of the total graduate coursework credit hours required by the committee must be in courses numbered 8000 or above, and at least 12 credit hours must be in the major field of study, as required by the Graduate School. Up to three credits (but no more than three credits) of seminar classes (CH8510 and CH8520), may be counted toward the required total of 24 credit hours of coursework.

Ph.D. Requirements

PhD Students must complete a minimum of 60 hours of graduate credits, including at least 18 hours of doctoral research

Both MS and PhD students are required to present an oral defense of their thesis or dissertation to their committee members. The graduate school requires that there be at least six months time between a student's oral exam and dissertation defense.

A sample M.S. program of study

- Year 1. First semester: Take 3 graduate courses. Attend seminars. Attend faculty research presentations. Choose a research advisor. Second semester: Take 3 graduate courses. Attend seminars. Begin work on research project
- Year 2. Select advisory committee. File GS-2 form. Take 2 more graduate courses (or more as needed / desired). Attend seminars. Continue working on research project. Present seminar and write and defend thesis if research is completed. Second semester: present literature seminar.
- Year 3. Take more graduate courses as needed / desired. Attend seminars. Continue working on research project. Publish and present research results. Write and defend thesis.

A sample Ph.D. program of study

- Year 1. First semester: take 3 graduate courses. Attend seminars. Attend faculty research presentations. Interview faculty. Choose a research advisor. Begin taking cumulative exams. Second semester: take 3 graduate courses. Attend seminars. Begin work on research project. Continue taking cumulative exams.
- Year 2. Select advisory committee. File GS-2 form. Take 2 more graduate courses (or more as needed/desired). Attend seminars. Continue taking cumulative exams. Continue working on research project. Second semester: present literature seminar.
- Year 3. Complete cumulative exams. Write a research proposal / report in preparation for oral (comprehensive) exam. Complete oral (comprehensive) exam. File the GS-5 form. Take more graduate courses as needed / desired. Attend seminars. Continue working on research project. Publish and present research results.
- Year 4. Attend seminars. Continue working on research project. Publish and present research results. First semester: present research seminar.
- Year 5. Attend seminars. Continue working on research project. Publish and present research results. Write and defend thesis.

4.16 Overview of Some Relevant Forms from the Graduate School.

GS Forms need to be filled out by all grad students as a way for the Graduate School and the Chemistry Department to keep a record of student progress. These forms are on-line (see URLs below). If you have questions, contact the Graduate Student Coordinator in 215A Hunter. Deadlines for turning in these forms to the Graduate School can be found in the “Graduate Announcements” and at <http://www.grad.clemson.edu/deadlines.php>. After completing each of these forms turn it in to the Graduate Student Coordinator, who will submit them to the Graduate School.

GS2 Plan of Study. This form is used list the coursework that will be used to complete the individual student’s degree. It must adhere to Graduate School as well as departmental policies. It is available online using iRoar (<http://iRoar.clemson.edu>). Note that it is not necessary to have finished the coursework in order to complete this form; the form can (and should) be completed as soon as the student and advisor have agreed on the coursework that will be needed for the degree. It is not required to list every course (e.g. all semesters of seminar; all credits of PhD research) on this form — merely those that are required to meet all degree requirements.

GS2 Committee Selection. This form is used to specify the members of the student’s MS or PhD advisory committee. It is available online using iRoar (<http://iRoar.clemson.edu>), and should be completed by the end of the third semester of study.

GS5-D Form (Results of the Doctoral Comprehensive Exam and Candidacy Form). The GS5-D form should be filled out upon completion of the Ph.D. comprehensive (oral) exam. This is for Ph.D. students only. <http://www.grad.clemson.edu/forms/pdf/g5.pdf>

GS4 (Application for Graduation and Diploma Order). You must submit a formal application for a diploma to the Graduate School. You must complete this form online in the first four weeks of the semester in which you intend to graduate. Visit <http://www.grad.clemson.edu/forms/GeneralForms.php> and click on the GS4 link to access the application. Early submission is not accepted (e.g., do not complete the form in January if you do not plan to graduate until August or December, only if you plan to graduate in May). If you miss the deadline, you must contact Enrolled Services to receive a hard-copy version of the application; late fees will accrue at \$25 the first day after the deadline and an additional \$5 each business day thereafter to a maximum of \$125. If you submit the form and, for some reason, do not graduate in that semester, you must re-submit in each term in which you hope to graduate thereafter.

If your name in the student database is not as you want it to appear on your diploma (due to marriage, etc.), you must contact Enrolled Services prior to submitting the Diploma Application form online. Any degree/major changes via form GS2 must also be processed before you submit the Diploma Application.

There is no fee to receive a diploma if you attend the graduation ceremony or agree to pick up your diploma in the Enrolled Services office in Sikes Hall. There is a fee assessed if you request that your diploma be mailed to you.

For more information, contact Enrolled Services at (864) 656-5339, if your last name begins with A-L, or (864) 656-5341 if your last name begins with M-Z.

If you choose to participate in graduation ceremonies, you should make arrangements for cap and gown purchase (or rental, if preferred, for PhD gowns) at this same time. See the Clemson University Bookstore's website at <http://www.clemson.edu/campus-life/campus-services/bookstore/graduationitems.html> for deadlines and more information.

GS7-M Form (Final Exam and Approval Form – MS Candidates). Upon successful completion of your oral defense and the approval of your manuscript by your committee, the GS7-M form should be filed. The Graduate Student Coordinator will hand this form to you on the day of your defense. Return this form to the Graduate Student Coordinator after the defense. This form is due two weeks prior to graduation.

GS7-D Form (Dissertation Oral Defense and Approval Form – PhD Candidates). Upon successful completion of your oral defense and the approval of your manuscript by your committee, the GS7-D form should be filed. The Graduate Student Coordinator will hand this form to you on the day of your defense. Return this form to the Graduate Student Coordinator after the defense. This form is due two weeks prior to graduation.

GS14 Form (Request for Change of Degree and/or Major). This form is a request for change of degree and/or major. <http://www.grad.clemson.edu/forms/pdf/g14.pdf>

The Graduate School sets deadlines for the following items, some of which are listed below. The specific dates are determined according to the academic calendar for the semester in which you plan to graduate.

Form/process	Approximate deadline*
Submit your final GS2 to Enrolled Services	End of the term prior to the term in which you plan to graduate
Submit GS5 to Enrolled Services	Six months prior to defense
Complete online application for diploma (formerly Form GS4)	Within the first four weeks of the term in which you will graduate
Add your defense to the university defense calendar: http://www.clemson.edu/graduate/calendar/index.html	At least 10 days prior to your defense.
Submit completed thesis/dissertation electronically for formatting review	Two weeks prior to graduation
File GS7 with Enrolled Services	Two weeks prior to graduation
All revisions requested by the Manuscript Review Office must be completed and approved by the Manuscript Review Office	One week prior to graduation

*Refer to the Graduate School's website for actual deadline dates (<http://www.grad.clemson.edu/Deadlines.php>). All Graduate School forms are available online at <http://www.grad.clemson.edu/forms/GeneralForms.php>.

4.17 Costs

For current tuition and fees, see <http://www.grad.clemson.edu/Financial.php> and <http://www.clemson.edu/cfo/receivables/sar/feesched.html>.

Graduate assistants may choose to deduct their tuition and fees from their paychecks in the fall and spring semesters. Graduate assistants must complete a payroll deduction form and take the form to University Revenue & Receivables in G08 Sikes Hall. The tuition and fees will be deducted from the first six paychecks of the semester.

Please see the Graduate Student Coordinator if you have any questions about your tuition and fees.

4.18 Withdrawing from the Program

If for any reason you decide to withdraw from the program, inform your advisor, and the Graduate Student Coordinator, who will inform you of the procedure to officially withdraw from the university. If you do not follow this procedure, you could end up owing tuition and other fees to the University. This applies to both domestic and foreign students.

5 WORKING AT CLEMSON

Graduate students in good standing in the Clemson chemistry program are normally supported as either teaching assistants (TAs) or research assistants (RAs). Students supported on assistantships receive a stipend, which provides for living expenses while the student pursues his/her degree. Funds for teaching assistantships normally come from Clemson University; stipends are normally set at the same level for all students who are qualified to teach lab sections (i.e., for international students, this means the student has passed the CESP test with a satisfactory score.) Funds for research assistantships normally come from faculty research grants; stipends are normally set by the principal investigator of the research grant from which the funds are derived.

Assistantship support is generally available only to students that are meeting all of the academic requirements of the graduate curriculum, and who have secured a faculty research advisor in the chemistry department. The main exception to this is for first-year students, who are supported on teaching assistantships during the first year while choosing a research advisor. In cases where a student switches research groups or loses the support of a research advisor, the department may support the student for a very limited time on teaching assistantship, subject to the availability of funds. After any such temporary period, students who are unable to obtain or maintain the advising support of a research advisor will not be eligible for financial support.

5.1 Teaching Assistantships

Students supported as teaching assistants will be assigned specific duties, which may include one or more of the following: teaching laboratory sections, grading papers, and proctoring exams. It is important that these considerable responsibilities be taken seriously and discharged conscientiously. If illness, accident, or an emergency prevents you from meeting your commitment, you must inform your supervisor and help make arrangements to cover that duty.

5.2 Research Assistantships

Through mutual agreement, a student may work for a professor on a research problem and while doing so be supported as a research assistant. The duties of such an assignment are given to the student by the professor in charge. Each graduate research assistant will work out with his research supervisor his responsibilities and duties regarding research.

5.3 Summer Support

Graduate students in the Clemson chemistry department are supported in summer as either teaching or research assistants, as in the academic year. Support is normally guaranteed for the first summer as part of the teaching assistantship offered to entering students in their first year, with the understanding that such students will not be assigned teaching duties in the summer of their first year and will be free to dedicate themselves fully to research.

First year students will need to register for research hours during the summer to be supported on an assistantship and will be required to pay the Grad Assistant fee and any other related fees. After the first summer, students who are supported as teaching assistants in summer will be

expected to perform duties as specified above in the section above on teaching assistantships. They will also be required to register for hours and pay the related Grad Assistant fees.

5.4 Time Limit on TA Support

Teaching assistantship support is normally made available to graduate students for only a limited time. A student pursuing a Ph.D. degree may be supported from departmental funds for no more than 5 calendar years total (ten academic semesters) as a teaching assistant, and a student pursuing an M.S. degree may be supported for no more than 3 years (six academic semesters) as a teaching assistant. Exceptions to these limitations may only be made with approval of the department chair.

Students who have received more than 5 years of TA support will be required to meet with the department chair, graduate program advisor, and research advisor to discuss their plans for completing the degree.

It should be noted that while most chemistry graduate students are supported as either teaching or research assistants, no student is ever guaranteed financial support. Unsatisfactory performance of teaching duties, in course work or research work can be cause for termination of financial support.

5.5 Payroll and Paydays

All Clemson University employees receive bimonthly paychecks, on the 15th and the last day of the month (24 paychecks per year). Your first check in the fall semester is usually the first payday in September. The Department Office Manager can inform you of the payday schedule.

5.6 Holidays

Graduate students are entitled to take as holidays the days on which the University is officially closed. In addition graduate students are allowed to take ten working days during the year, that is, essentially, two weeks, as vacation. The latter should be taken so that the interference with teaching responsibilities and the research program is minimal. Any leave beyond this allotment requires approval of the research advisor, and notification of the Graduate Coordinator and Department Chair. Students will not normally receive a departmental stipend for extended leave beyond that indicated above.

<i>University Holidays</i>	<i># of Days</i>
New Year's Day	1
Martin Luther King Day	1
Spring Break (1 day)	1
Independence Day	1
Fall Break (1 day)	1
Thanksgiving (2 days)	2
Christmas (4 days)	4
TOTAL	11

5.7 Outside Employment

One of the purposes of the graduate assistantships (research or teaching) is to support the student's subsistence during his or her graduate studies. Therefore, it is the policy of the chemistry department to disallow students from outside employment if the assistantship is equivalent to more than half time. Exceptions to this policy are temporary consulting and/or tutoring jobs, which the student may do with the approval of his/her supervisor.

6 DEPARTMENTAL OPERATIONS AND GENERAL INFORMATION

6.1 Student Contact Information

All students are required to update their contact information. These records are kept by different departments and should be reported to each separately.

You need to update the Chemistry Department by informing the Graduate Student Coordinator whenever there is a change in your Clemson University contact information: room, building, and/or phone number. You should also inform the department of home phone and local address changes. The department is not authorized to release your personal information to third parties. In addition, you need to change your address in the Student System using iRoar (<http://iroar.clemson.edu>).

If you have been awarded an assistantship, you also need to complete the "Change of Address Form available at the Office of Human Resources' website, http://www.clemson.edu/employment/worklife/change_address.html. Contact the Graduate Student Coordinator if you have questions.

6.2 Student Offices

For the first semester, new graduate students will have a desk in Room 203. After the student has chosen a research advisor then he/she should move to office space in that professor's laboratory. Students should not move from their assigned desk until the department chairman has approved their selection of a research advisor. After moving, the student should notify the Graduate Student Coordinator of the move so that department listings may be updated.

6.3 Building Security and Keys

An administrative assistant in the main office will issue you the keys you will need during new student orientation or shortly thereafter. You will receive keys to the labs you are assigned to.

To request a key, you must complete a key request form, which is available in the main office, 219 Hunter. Two signatures are required on the form: yours and the faculty member who is in charge of the room.

It shall be clearly understood by all those receiving keys that he or she shall:

- Exercise great care to prevent loss. Should loss of a key occur, this loss should be reported immediately to the Chemistry Department office.
- Not loan a key to anyone.
- Enter the building using your student ID card after regular hours. The outside door will lock each afternoon at 4:30 p.m. and will be locked until 7:30 a.m. You must enter using your student ID card. The library and copy room will always remain unlocked. Please see the building manager, Laura Hupp in 235B Hunter, to have your ID card activated to access the building after hours.
- Under no circumstances hold the door for anyone to enter the building after 4:30 p.m. daily or on the weekends. They must enter the building using their student ID card.
- Report to the University Police and to the Office Manager any unusual or suspicious occurrence or persons found in Hunter Lab after the building is normally closed.

6.4 Mail

Graduate student mailboxes are located in the graduate student lounge, Hunter room 370. Delivery of US mail and Clemson campus mail is made to these boxes. You should check your box daily for memorandums, notes, mail etc. Contact the Graduate Student Coordinator if you have questions.

6.5 Photocopying

The chemistry department maintains several photocopiers, some for student use and some exclusively for departmental staff use. Normally, one of these copiers is located in the chemistry mailroom and is designated for student use in copying library materials. At present, photocopying on departmental copiers may be performed free of charge, up to certain monthly limits which are set by the master operators.

Photocopier hardware and policies change frequently, so students are advised to ask in the main office if they are unsure of which copier(s) are available for student use.

6.6 Library Resources

Library resources for chemistry are housed in two separate facilities at Clemson. Most of the materials, including nearly all books and many important periodicals (journals) are housed in the Cooper Library, which is the main library building on the Clemson campus. In addition, many materials of particular interest to chemistry students, faculty, and staff are housed in the chemistry branch library in Hunter Laboratory (i.e., the chemistry building.). You will almost certainly make use of both libraries during your graduate studies, so you should be familiar with them both.

Cooper library is located in the center of campus, near the reflecting pool. Students may borrow books from Cooper library using their student ID. There are several photocopiers on the entry

floor that are coin-operated. Two of the copiers may be used with prepaid accounts, which may be set up by individual research groups.

The chemistry branch library in Hunter is located in Room 215. Current journals are located on display shelves, and bound journals are on the labeled bookshelves. A full list of periodicals and their location is available at the desk in the chemistry library.

The Chemistry branch library is an important resource for your work and your help is needed to maintain its usefulness. Please follow these rules when using the Chemistry branch library:

1. Do not remove journals and books from the library.
2. Reshelf books and journals after use.
3. No food or drink in the library.

A recent trend in library science is the shift to electronic resources. Clemson provides access to a broad range of electronic resources including electronic journals, search engines, databases, and other materials. Further information on electronic library resources available at Clemson may be obtained at the Cooper Library web site, or at the reference desk in Cooper Library.

6.7 Computers in Hunter

Student access to computers in Hunter is through computers in the individual research labs, and through a few public-access computers in various places throughout the building. Several such computers are maintained in the Chemistry branch library; others are in various places, which change as the computers are upgraded and moved. Students should ask in the main office for up-to-date information regarding availability of public computers in Hunter.

6.8 E-mail

Upon acceptance to Clemson University, you will receive information about your user ID and password from the Graduate School. E-mail is the most common mode used by the department and the university to communicate with you. Please check your e-mail regularly.

6.9 Counseling Services

The demands of graduate school can sometimes seem overwhelming. If you feel you could benefit from talking to a counselor – about grad school stress or any other issue – you may be eligible to receive services from the Counseling and Psychological Services Program (CAPS), located in Redfern Health Center.

To learn about their current programs, visit the CAPS website at <http://www.clemson.edu/studentaffairs/redfern/caps/index.php> or call them at (864) 656-2451.

6.10 The Chemistry Department Stockroom

Many of the supplies, gases and equipment needed in research labs may be purchased from the Department Stockroom in Hunter 235. Stockroom purchases are accurately recorded and are charged to each individual research group. Quarterly invoices of purchases, with an itemized list, will be charged to each research group's faculty member.

STOCKROOM WINDOW HOURS – HUNTER 235

Monday - Friday
8:00AM – 12:00PM
1:00PM – 4:30 PM

Chemicals that are highly hazardous must be transported using approved safety carriers. Please remember to bring your safety carrier with you when picking up hazardous materials, e.g. acids, solvents, etc. If your lab doesn't have one, the stockroom will **lend** you one.

A small amount of equipment is available for loan from the stockroom including the following: carts, extension cords and safety carriers. This equipment is checked out and signed for.

The stockroom manager and personnel politely, but firmly, request that **NO** laboratory gloves be worn when picking up shipments and supplies at the Hunter 235 window.

THERE IS NO DISPENSING OF CHEMICALS DONE IN THE STOCKROOM

6.11 Procedure for Ordering Chemicals & Lab Equipment

Clemson University holds many state contracts with vendors. State Contracts held with Fisher Scientific and VWR International offer discounted prices and no shipping fees. These vendors also distribute for other chemical companies. Always check with state contracted vendors first when making lab supply purchases. Lists of contracted vendors can be found on the CU website under Procurement. Vendor's catalogs should be present in each research lab; copies may also be used in Hunter 235.

BuyWays is the best way to view accurate pricing for the VWR, Fisher, and Sigma websites. It is like one stop shopping. You can log in to access the site using your employee username and password.

<https://solutions.scquest.com/apps/Router/Login?OrgName=Clemson&tmstmp=1238434453337>

Purchases are made using the department's triplicate copy purchase form, which can be found on the windowsill of Hunter 235.

In filling out the form, please use the following guidelines:

- Fill in the proper information. **PRESS FIRMLY AND WRITE NEATLY!!!**
- Next to NAME: Fill in Advisor's name/your name and email address.

- Please fill in vendor's name (company we are ordering from) and the vendor's phone number.
- Under the QUANTITY: be sure to indicate the unit of measure (ea., pkg., gram, ml, etc.), along with the amount you want (100 g, 500 g, 100 ml, etc.). For example: 2 X 50g, 1 X 500ml
- It is essential that you indicate the correct catalog number; otherwise your order cannot be processed and will be returned to you for correction. **WRITE NEATLY!!!**
- Include the description of the item.
- Unit Price will usually vary from catalog price. Leave blank if unsure.
- After the requisition form is filled out, **always** have your advisor indicate the grant or account number the order will be charged to and sign the form. Orders without the authorizing advisor's signature, will not be processed
- If order is needed ASAP, be sure to indicate this in writing on the order form. There will be an additional shipping charge with overnight and/or rushed orders.
- When the form is completed, return it to the stockroom manager in Hunter 235.

DO NOT place orders yourself unless your research advisor has approved it. Research advisors must indicate change in policy (in writing) to Stockroom Manager. **All** orders must have a purchase order number issued by the stockroom manager, your advisor's signature, and the account to charge.

You will be notified of your order's delivery electronically and/or names will be posted on the board in Hunter 235.

For all research groups that are not located in Hunter, orders can be sent electronically to robinw@clemson.edu. Ask your advisor for computer access to group order form. Please indicate room and building where delivery is needed. All packing slips must be turned in to the stockroom manager in 235 Hunter.

6.12 Procedure for Ordering Office Supplies

Office and computer supplies are ordered, maintained, and invoiced through the main office in Hunter 219.

6.13 Procedure for Requesting Departmental Letters

When applying for driver's license, SC identification, extension of visa (foreign students), and other personal matters, you may be asked to present evidence of your student and/or stipend status. Contact the Graduate Student Coordinator and make your request indicating your full name (as it should appear on the letter), student ID, and what you need the letter for. You will be contacted once your letter is ready for pickup.

6.14 Procedure for Hazardous Waste Removal

Environmental Compliance Officer: June Brock-Carroll		
Web Site: http://ehs.clemson.edu	656-1770	e-mail- juneb@clemson.edu

You must be registered as having taken the on-line hazardous waste training before requesting hazardous waste pick up. Refer to the above web site.

All waste chemicals must be properly labeled and stored. All waste chlorinated solvents will be kept in separate containers from non-chlorinated solvents. There will be NO UNKNOWN WASTE CHEMICALS PRODUCED OR STORED BY ANYONE. When the supply of waste reaches a significant quantity, each individual lab is responsible for requesting a pick-up from the E.C.O.

1. Submit a pick up request, electronically, by clicking on the link found on the EH&S web site, <http://ehs.clemson.edu> Hazardous waste removal request forms and labels can also be found in the mail/copier room or Hunter 235.
2. Request empty hazardous waste and biohazard sharps containers from EH&S Dept. on the pickup request form.

Please refer to your Clemson University EH&S Hazardous Waste Management Manual with any questions, or contact EH&S.

PLEASE take the proper steps in requesting a hazardous waste removal from your lab, which are as follows:

1. REGISTER ON LINE WITH EH&S AS COMPLETING THE HAZARDOUS WASTE TRAINING.
2. Complete a Hazardous Waste Removal Request form found at EH&S web site.
3. Submit completed form electronically.
4. Print pick-up request and attach form to container(s) to be picked up.

6.15 Work Injury Protocol

Clemson University

Effective April 1, 2001

*** Immediately after a work injury, the supervisor will call**

CompEndium Services @ 877-709-2667.

Give your Name/Company Name. A Medical Manager Nurse will take your call and ask the name of the injured worker and specific questions about the accident.

The Employer's First Report of Injury will no longer be used.

The Employer's First Report of Injury will no longer be used.

CompEndium will assist the injured worker in selecting a physician and scheduling an appointment or will direct the injured worker to the Emergency Room (ER). Clemson University employees will be directed to Redfern Health Center during normal business hours.

CompEndium will notify the Physician or the ER of the injury and the arrival of the injured worker.

The physician or the ER will call CompEndium before the injured worker leaves the facility to receive authorization for treatment and/or referrals. Immediately following, the Medical Manager Nurse Consultant will call you with a report on the status of your employee's condition and work status.

The physician's report/case notes will be faxed within 24 hours of after treatment.

NO COVERAGE FOR CLAIMS UNLESS REPORTED BY SUPERVISOR BEFORE MEDICAL TREATMENT IS RECEIVED.

In the event of an Emergency call 911 immediately. Once the emergency is under control by emergency personnel, CompEndium needs to be called next.

*CompEndium Nurses are available 24 hours a day - 7 days a week at 877-709-2667
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FAX 877-710-2667

6.16 OMBUDSMAN INFORMATION

Ombudsman for Faculty and Graduate Students

What Is an Ombudsman?

The ombudsman is an independent, confidential resource that provides assistance to faculty, graduate students and post docs in resolving problems, complaints and conflicts when normal processes and procedures have not worked satisfactorily. The Ombudsman's Office serves as a central information source on policies, procedures and regulations affecting faculty, graduate students, and post docs. The office refers individuals to persons able to resolve problems or handle appeals at the lowest possible level. Where appropriate, the ombudsman can facilitate and/or mediate communication between parties who find themselves in a dispute.

What Is the Role of the Ombudsman?

The ombudsman strives to ensure that faculty, graduate students and post docs receive fair and equitable treatment within the University system. He provides an independent point of view in an informal and confidential environment. The ombudsman will not identify you or discuss your personal concerns with anyone without your permission. Private confidential meetings can be arranged at your convenience. All communications will be treated with strict confidentiality. The ombudsman works toward resolutions based on principles of fairness. He is neither an advocate for faculty, administration, or students, nor an agent of the University, but is an advocate of fair processes.

What Services does the Ombudsman provide?

The Office of the Ombudsman provides fair and impartial counseling to faculty members, graduate students and post docs by:

1. Addressing problems and concerns, identifying and evaluating options to reach resolutions.
2. Providing available resources within the University that may be of assistance
3. Serving as a neutral party in conflict resolution
4. Opening lines of communication through mediation
5. Recommending changes in University policies and procedures when necessary

How Does the Ombudsman Help?

The Office of the Ombudsman is available to assist faculty members, graduate students and post docs who:

1. Have a problem or concern relating to the University and need guidance in resolving the issue
2. Need information about policies or procedures at Clemson
3. Need someone to mediate between individuals or within the University
4. Think that the University has made an error in a particular case
5. Feel like a victim of harassment or discrimination
6. Are unsure about which University policies, procedure or regulations apply to certain situations
7. Have a specific academic problem that cannot be resolved by following regular University procedures
8. Feel that he/she has been unfairly or inequitably treated
9. Have a problem that requires someone to negotiate a solution or to help facilitate communication between parties
10. Feel that a University policy, procedure or regulation has been applied unfairly or erroneously

Code of Ethics

The ombudsman, as a designated neutral, has the responsibility of maintaining strict confidentiality concerning matters that are brought to his attention unless given permission to do otherwise. The only exceptions, at the sole discretion of the ombudsman, are where there appears to be imminent threat of serious harm. The ombudsman must take all reasonable steps to protect any records and files pertaining to confidential discussions from inspection by all other persons, including management.

The ombudsman will not testify in any formal judicial or administrative hearing about concerns brought to his attention. When making recommendations, the ombudsman has the responsibility to suggest actions or policies that will be equitable to all parties.

Standards of Practice

The Clemson University ombudsman adheres to the Ombudsman Association Code of Ethics:

1. We base our practice on confidentiality.
2. We assert that there is a privilege with respect to communications with the ombudsman, and we resist testifying in an informal process inside or outside the organization.
3. We exercise discretion whether to act upon a concern of an individual contacting the office. An ombudsman may initiate action on a problem he or she perceives directly.
4. We are designated neutrals and remain independent of ordinary line and staff structures. We serve no additional role (within an organization where we serve as ombudsman) which would compromise this neutrality.
5. We remain an informal and off-the-record resource. Formal investigations for the purpose of adjudication should be done by others. In the event that an ombudsman accepts a request to conduct a formal investigation, a memo should be written to file noting this action as an exception to the ombudsman role. Such investigations should not be considered privileged.
6. We foster communication about the philosophy and function of the ombudsman's office with the people we serve.
7. We provide feedback on trends, issues, policies and practices without breaching confidentiality or anonymity. We identify new problems, and we provide support for responsible systems change.
8. We keep professionally current and competent by pursuing continuing education and training relevant to the ombudsman profession.
9. We will endeavor to be worthy of the trust placed in us.

The Office of the Ombudsman welcomes constructive suggestions of ways to better serve the faculty, graduate students and post docs at Clemson University. If we can be of service to you, please feel free to contact our office.

Assistance for Students and Staff

Graduate Students: Any complaint should first be taken to the faculty or staff member involved to reach a resolution. If no resolution is reached, the graduate student should consult with the department chair and the dean who will hear the complaint and act as a referee. The ombudsman, student, dean of the college, department chair and the involved faculty or staff member should make every effort to reach a solution. If a resolution cannot be made, the student should then consult with the dean of the Graduate School. Graduate students should talk with the associate dean responsible for academic grievances if mediation is necessary. The Graduate School is located in E-106 Martin Hall, and the telephone number is 656-4172.

How Can the Ombudsman be contacted?

Concerns can be directed to the university ombudsman by letter, walk-in, appointment or telephone:

R. Gordon Halfacre, member of the Ombudsman Association,
University Ombudsman for Faculty and Graduate Students
101 Clemson House

248 N. Palmetto Blvd.
Clemson University
Clemson, SC 29631-5107
Office: (864) 656-4353 or 656-4957
Fax: (864) 656-4373
Email: ombudsman@clermson.edu
Web site: <http://www.clemson.edu/ombudsman/>

7 CHEMISTRY GRADUATE PROGRAM FORMS

For convenience, copies of several chemistry-specific forms appear on the following pages:

- Checklist of PhD requirements. This form is maintained by the Graduate Program Coordinator in order to track each student's progress toward degree.
- Petition for Course Substitution Form: Optional. Used to request that a course taken elsewhere be used to satisfy a degree requirement. To be completed as early as possible, preferably during the first few weeks of the first semester of graduate studies.
- Advisor Interview Form: Used to document discussions of research department faculty. To be completed during the first semester of graduate studies.
- Research Advisor Selection Form: Used to indicate student's preference of research advisors, and by the department to approve the choice of research advisor. To be completed during the first semester of graduate studies.
- Cumulative Exam Point Distribution Form: Used to specify the area in which cumulative exams must be taken. To be completed during the first semester of graduate studies, or early in the second semester, after selecting a research advisor.
- Checkout Form: Used to document return of keys and research materials. To be completed before leaving the department or a research group.

Electronic copies of the forms are available on the chemistry department web site.