



Graduate Studies Handbook

2022 -2023

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This information applies to the academic year 2022-2023 and is accurate and current, to the best of our knowledge, as of August 2022. Inasmuch as changes may be necessary from time to time, this handbook and the matters contained therein are not binding on the Department of Chemistry or Duke University, and this handbook should not be construed as constituting a contract between Duke University and any individual. The Department of Chemistry reserves the right to change the program of study, academic requirements, lecturers, teaching staff, the announced calendar, and other matters described in the handbook without prior notice.

***NOTE:** The Department of Chemistry is housed in the French Family Science Center, a state-of-the-art research facility constructed in 2007. The French Family Science Center totals over 275,000 square feet and is a shared research facility with groups from Biology, Physics, Mathematics and the Medical Center occupying space.*

The Chemistry Department occupies 37,000 square feet of research space in the French Family Science Center as well as 15,500 square feet of teaching space and almost 3000 square feet of space for instrument support.

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Academic Year 2022 – 2023 Calendar

Fall 2022

Saturday, August 20	New undergraduate student orientation begins
Tuesday, August 23	New Graduate Student orientation begins
Wednesday, August 24	11:00 AM. Convocation for new undergraduate students 4:00 PM. Convocation for new graduate and professional school students
Monday, August 29	8:30 AM. Fall semester classes begin; Drop/Add continues
Monday, September 5	Labor Day. Classes in session
Friday, September 9	Drop/Add ends
Thursday - Sunday, September 29 - October 2	Founders' Weekend
Friday, October 7	Last day for reporting midsemester grades
Friday, October 7	7:00 PM. Fall break begins
Wednesday, October 12	8:30 AM. Classes resume
Monday, October 24	Shopping carts open for Spring 2023
Wednesday, November 2	Registration begins for Spring 2023
Friday, November 11	Last day to withdraw with W from Fall 2022 classes (undergraduates only)
Monday, November 14	Registration ends for Spring 2023
Tuesday, November 15	Drop/Add begins for Spring 2023
Tuesday, November 22	10:30 PM. Thanksgiving recess begins

Fall 2022

Monday, November 28 8:30 AM. Classes resume

Friday, December 2 Graduate classes end

Saturday - Wednesday,
December 3 - 13 Graduate reading period

Friday, December 9 Undergraduate classes end

Saturday - Tuesday, December
10 - 13 Undergraduate reading period

Wednesday, December 14 Final examinations begin 9:00 AM

Monday, December 19 Final examinations end 10:00 PM

Fall 2022

Saturday, August 20 New undergraduate student orientation begins

Tuesday, August 23 New Graduate Student orientation begins

Wednesday, August 24 11:00 AM. Convocation for new undergraduate students

4:00 PM. Convocation for new graduate and professional school students

Monday, August 29 8:30 AM. Fall semester classes begin; Drop/Add continues

Monday, September 5 Labor Day. Classes in session

Friday, September 9 Drop/Add ends

Thursday - Sunday, September
29 - October 2 Founders' Weekend

Friday, October 7 Last day for reporting midsemester grades

Friday, October 7 7:00 PM. Fall break begins

Fall 2022

Wednesday, October 12	8:30 AM. Classes resume
Monday, October 24	Shopping carts open for Spring 2023
Wednesday, November 2	Registration begins for Spring 2023
Friday, November 11	Last day to withdraw with W from Fall 2022 classes (undergraduates only)
Monday, November 14	Registration ends for Spring 2023
Tuesday, November 15	Drop/Add begins for Spring 2023
Tuesday, November 22	10:30 PM. Thanksgiving recess begins
Monday, November 28	8:30 AM. Classes resume
Friday, December 2	Graduate classes end
Saturday - Wednesday, December 3 - 13	Graduate reading period
Friday, December 9	Undergraduate classes end
Saturday - Tuesday, December 10 - 13	Undergraduate reading period
Wednesday, December 14	Final examinations begin 9:00 AM
Monday, December 19	Final examinations end 10:00 PM

Spring 2023

Wednesday, January 11	8:30 AM. Spring semester begins: The Monday class meeting schedule is in effect on this day. Regular class meeting schedule begins on Thursday, January 12; Classes meeting in a Wednesday/Friday meeting pattern begin January 13; Drop/Add continues
Thursday, January 12	Regular class meeting schedule begins
Monday, January 16	Martin Luther King, Jr. Day holiday. No classes are held.

Spring 2023

Wednesday, January 25	Drop/Add ends
Monday, February 20	Registration begins for Summer 2023
Friday, February 24	Last day for reporting midsemester grades
Friday, March 10	7:00 PM. Spring recess begins
Monday, March 20	8:30 AM. Classes resume
Monday, March 27	Shopping carts open for Fall 2023
Wednesday, March 29	Last day to withdraw with W from Spring 2023 classes (undergraduates only)
Wednesday, April 5	Registration begins for Fall 2023; Summer 2023 registration continues
Thursday, April 13	Registration ends for Fall 2023; Summer 2023 registration continues
Friday, April 14	Drop/Add begins for Fall 2023
Wednesday, April 19	Graduate classes end
Thursday - Sunday, April 20 - 30	Graduate reading period
Wednesday, April 26	Undergraduate classes end
Thursday - Sunday, April 27 - 30	Undergraduate reading period
Monday, May 1	9:00 AM. Final examinations begin
Saturday, May 6	10:00 PM. Final examinations end
Friday, May 12	Commencement begins
Sunday, May 14	Graduation exercises; conferring of degrees

Summer 2023

Monday, February 20 Registration begins for all Summer sessions

Wednesday, May 17 Term 1 classes begin. The Monday class meeting schedule is in effect on this day. (Therefore, all summer classes meet this day.) Regular class meeting schedule begins on Thursday, May 18

Drop/Add continues

Thursday, May 18 Regular class meeting schedule begins

Friday, May 19 Drop/Add for Term 1 ends

Monday, May 29 Memorial Day holiday. No classes are held.

Wednesday, June 14 Last day to withdraw with W from Term 1 classes (undergraduates only)

Monday, June 19 Juneteenth holiday. No classes are held.

Monday, June 26 Term 1 classes end

Tuesday, June 27 Reading period

Wednesday, June 28 Term 1 final examinations begin

Thursday, June 29 Term 1 final examinations end

Monday, July 3 Term 2 classes begin

Tuesday, July 4 Independence Day holiday observed. No classes are held

Thursday, July 6 Drop/Add for Term 2 ends

Monday, July 31 Last day to withdraw with W from Term 2 classes (undergraduates only)

Thursday, August 10 Term 2 classes end

Friday, August 11 Reading period (until 7:00 PM)

Friday, August 11 7:00 PM. Term 2 final examinations begin

The Graduate Program in Chemistry

I. Introduction

The goal of the graduate course and examination protocol is to emphasize research and research accomplishment at an early stage, and to incorporate appropriate training methodology in a flexible manner so that individual needs/goals of both the student and research advisor can be met. This protocol emphasizes certain basics of training while at the same time recognizes that individuals and groups often differ in the mode and timing of the research training accomplishments. Also recognized is that the course and examination process must be effective in identifying potential 'at risk' students who need additional help or supervision at an early stage.

The concept of a "major" is not formally recognized. A student's committee, coursework, and his/her path to the defense examination are individually designed by the student in conjunction with his/her advisor, supervisory committee and research trajectory and are planned according to the particular research area and topic involved.

The major requirements of the PhD program are:

- 22 Units of Graded Course Work
- 3 Lab Rotations
- Responsible Conduct in Research Training (12 units)
- Preliminary Examination (year two, spring)
- Annual Research Progress Report (years 3+)
- Oral Presentation Requirement
- Propositional Examination (year 4)
- PhD Dissertation and Examination
- The requirements above, along with other features of the graduate program as described in the following sections.

II. Features of the Program

A. Graduate School Requirements

The Graduate School does not require registration for a fixed number of course units for the PhD degree and leaves the specific course requirements up to the individual graduate programs. As a result, the course registration requirements for chemistry students primarily reflect the course requirements for the PhD program in chemistry described in the section that follows. It should be noted that the MS degree is not a prerequisite for the PhD degree.

In addition to any course requirements of the department, the Graduate School requires 1) payment of six semesters of full-time tuition, 2) a supervisory committee for the student's program of study,

3) continuous registration, 4) preliminary examination, 5) dissertation and 6) final examination. All of these requirements are incorporated into the graduate program in the Department of Chemistry. The Graduate School also requires training in the Responsible Conduct of Research (12 units) through participation in a series of workshops sponsored by the Graduate School. International students whose native language is not English must enroll in English language courses offered through the Graduate School **during their first 3 semesters**, unless formally waived from this requirement by the Graduate School.

Students electing or required to leave the PhD program and pursue the MS degree are required to complete a total of 30 units of graduate credit and must present acceptable grades for a minimum of 24 units of graded graduate course work (the additional 6 units would normally be research units for chemistry students). Additionally, for international students pursuing the MS degree, all EIS course requirements must be fulfilled. The MS degree process takes place in consultation with the student, the Director of Graduate Studies, and the student's research advisor.

B. Course Requirements

Students in the chemistry graduate program are required to complete 22 units of graded course work by the end of fall term of their second year in the program. During their first semester students register for a **minimum of 8 units of graded courses** (2 chemistry graduate courses or the equivalent) but may also take up to 12 units of graded courses (3 chemistry graduate courses or the equivalent). If a student fails to register for the minimum number of credits required by the program their affiliation into a research lab will be delayed. **Students must get approval from the DGS (prior to affiliation) or faculty research advisor (after affiliation) for course selection/registration.**

In the second semester students take another 8 to 12 units of coursework - the requirement is the student complete 4 full credit science courses by the second semester of the first year (spring). If their schedule allows, students may complete their course requirements (5.5 credit science courses) by the end of the second semester however, it is expected that many students will continue taking classes through the fall semester of the second year, at which time the student should achieve the total of 22 units (5.5 chemistry graduate courses or the equivalent). Courses offered outside of chemistry by other departments may be substituted for chemistry courses **with the permission of the Director of Graduate Studies**. Since many such courses **carry a different number of units** than the chemistry courses (3 units vs. 4 units for a full course), these courses count toward the required 22 units, and the way they are counted (described in Section II - M below), will be established in advance and in consultation with the DGS.

If a student has taken advanced chemistry or chemistry-related courses before arriving at Duke, he/she may request a waiver of a portion of the 22 credit requirement. The request must be submitted within the first three weeks of the 1st semester of the PhD program and be accompanied by a written explanation about the course(s) to be counted in place of Duke graduate courses. The DGS will render a decision regarding the request. Credits may not be counted if they were previously used to satisfy the requirements of another degree (AB, BA, BS, MS, etc.), and no more than 12 credits can be waived.

Students should also register for enough units of graded research (Chem 801) in the second year to give them at least 30 total units of degree credit, typically by taking 6 units of graded research during each semester of the second year. While these do not count toward the 22 units of courses required

for the PhD degree, they do count toward the total number of credits required for an MS degree should such a degree become a desirable or a necessary alternative to the PhD degree.

A list of the graduate courses in chemistry can be found elsewhere in this handbook (Section V) and is also available on the [department web site](#) and in the Graduate School Bulletin.

C. Teaching Requirement

The Department of Chemistry recognizes that teaching is an important component of the professional development of its doctoral students. Therefore, the normal expectation is that all chemistry graduate students, even those with full outside financial support, will teach a standard Teaching Assistant load for a minimum of two semesters during the first 3 years of graduate student tenure.

D. Rotations and Research Group Affiliation

Graduate students will participate in 3 short lab rotations during the fall semester of their first year as part of the affiliation process.

During orientation, faculty present their research to the incoming students. Based on their impression of those brief introductions, students will complete the rotation request form. On this form, students will rank order three faculty with whom they would like to rotate – the forms are due to Ms. Christiana Conti (in the Chair's Office) FFSC 3236B no later than **August 29, 2022** - the first day of fall classes. The DGS will then assign rotations based on student preferences and lab availability.

Rotations are 3 weeks in duration and students are expected to attend group meetings, (unless there is a conflict with class or teaching responsibilities) engage with faculty and graduate students to discuss current research and observe experiments and techniques.

Students will be allowed and encouraged to attend other labs' group meetings and to meet with other faculty and students during any rotation. Students are NOT required to have rotated in a particular lab in order to affiliate with that lab, but it is highly encouraged.

At the end of each rotation, the student and the PI will sign a form stating that the rotation was completed “in good standing” based on the previously discussed expectations. This form should be turned in to the Chair's Office on the final day of each rotation. Each student is required to complete three rotations in good standing.

Additional details and dates relevant to rotations will be given during student orientation. Before, during, and/or after rotations, students are encouraged to arrange personal conferences with those faculty members whose research is of interest to them. Students will ultimately be affiliated with specific research groups by a process of mutual selection administered the by department Chair. These affiliations are usually completed by the beginning of the second semester. The selection procedure will be discussed in greater detail with entering students during orientation.

E. Supervisory Committee

After a student has affiliated with a research advisor, a supervisory committee is appointed by the Director of Graduate Studies to plan (in consultation with the student & advisor) the remainder of his/her doctoral program and with the approval of the Dean of Academic Affairs at the Graduate School and to conduct the preliminary and final examinations. Committee assignments are normally

made during the fall semester of the second academic year. The Director of Graduate Studies will solicit from both the student and his/her research advisor the names of three proposed committee members. While making every effort to accommodate the requested proposed committee, the Director of Graduate Studies may revise the requested committee composition in order to balance committee assignments among the faculty in a reasonable manner.

The supervisory committee consists of at least four members, three of which should have a primary or secondary appointment in the Chemistry Department, and is chaired by the student's research advisor. At least one member (referred to by the Graduate School as the **minor area representative**) should be from a chemical sub-discipline outside of the student's research area, or possibly from another department. In some situations, especially those involving interdisciplinary research programs crossing department boundaries, it may be desirable or necessary to have a five-person committee. The same committee normally administers the final PhD examination, although an appropriate faculty member from another department may replace the minor area representative if desired. If a change in committee members becomes necessary, a committee request change form must be filed through the Director of Graduate Studies Office no less than 30 days prior to the scheduled PhD Examination.

F. Preliminary Examination Document (the dates in this section are approximate)

A written prelim document (PDF) will be submitted by each student to the Director of Graduate Studies Assistant by **March 1st** of the spring semester of year two. If a student's affiliation with a lab is delayed due to not completing the required coursework stipulated in Section C or placement on academic probation due to poor academic performance, the preliminary exam will **not** be deferred.

As well as demonstrating accomplished research and an understanding of the project, this report is to measure (and correct) the student's organizational and technical writing ability, and should be completed with minimal input from the research advisor. The report will be evaluated by all members of the student's supervisory committee, each providing critical comments and suggestions for revisions, both on the prelim document itself and the Chemistry Thesis Assessment Protocol (ChemTAP) worksheets provided. The report and comments will be returned to the student by **March 15th**. A final and updated version of this report will serve as the written document for the preliminary examination and will be considered part of the examination.

Preliminary Examination Document (In the style of a research proposal):

The Preliminary Examination document includes several sections, beginning with an Abstract of no more than 30 lines. The Abstract should include a summary of the broad, long-term objectives and specific aims of the proposed research as well as a description of the proposed research design and methods. The body of the document will include the following three sections: Background and Significance, Research Results, and Research Plan. The Background and Significance section should state the broad goals and specific aims of the research, point to the significance and/or relevance of the research and should provide sufficient background to place the research in the context of past and ongoing work in the research area. The Research Results section should summarize and discuss the results of studies completed by the student, to-date, with special emphasis on those results that are pertinent to the proposed dissertation research. The Research Results section should also include a description of any methods employed in the research to-date with expanded experimental details appended outside the body of the document as necessary. The Research Plan should describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the proposed dissertation research. The Research Plan should also

include a discussion of potential problems, alternative strategies, and benchmarks for success that are anticipated to achieve the aims. The body of the document should be 3000 to 5000 words not counting figures, references and any appended materials (e.g., experimental details associated with the research results, to-date). Students are encouraged to consult the ACS Style Guide and/or research journals in their research area for guidance on matters of reference style and format.

The preparation and submission of the Preliminary Examination document is meant to highlight the student's understanding of the research problem they selected for their dissertation research and the student's research accomplishments, to-date. The document also provides practice in technical writing, an important part of graduate training. Finally, the document serves as a first concrete step toward the preliminary examination, since the revised and updated version will also serve as the written document that guides the examination.

When submitting the final draft of preliminary exam document to the committee the student should also provide a summary of their changes.

G. Preliminary Examination

The preliminary examination occurs during the spring semester of the student's 2nd year and will be carried out in accordance to the regulations of the Graduate School as described in the [Graduate School Bulletin](#). **The Chemistry DGSA must file for and receive approval from the Graduate School (signed by Dean John Klingensmith) confirming their Preliminary Exam Faculty Committee members at least 30 days prior to the exam date.** Every effort is made to schedule preliminary examinations between late March – early May according to committee availability and scheduling a common time for the milestone to take place. As mentioned above, at least one week prior to the preliminary exam, the student will distribute to the members of the examining committee the final and updated version of preliminary examination document along with the completed Chem TAP B responses to the committee feedback (addressing the initial submitted document). This final version will serve as the written document for the examination. A one-page abstract should also be provided to the DGSA (PDF) for use in publicizing the seminar.

Just prior to (and considered part of) the preliminary examination, the student will present a brief (no longer than 30 minute) public seminar summarizing the research project and background, work accomplished to date, and projected plans for the future. The balance of the preliminary examination will be conducted in private with the students Supervisory Committee. This portion of the examination will involve questions from the committee aimed at measuring the student's general and specific background, knowledge of the particular research project involved, research results obtained to date, and planning for how the research will evolve into the dissertation. Since the research advisor is familiar with the student, it is expected that the bulk of the questions will come from the other members of the committee so that they can adequately evaluate the candidate. In particular, the advisor will refrain from assisting the student in answering questions. Students should be prepared to provide and discuss materials such as primary data or laboratory notebooks.

At the conclusion of this milestone examination (approximately 2 hours - including the brief oral presentation) the committee members will deliberate whether the student should be admitted to candidacy for the PhD degree and each will vote to either pass or fail. This decision is based on material in the written prelim document, public presentation of research, performance during the questioning portion of the exam, and input from the research advisor. Specifically, students will be evaluated on the following:

- Fundamental understanding of the research area;
- Specific understanding of the research project and its significance;
- Productivity and progress to date on the research project;
- Future research plans toward the dissertation; and
- Evidence of and capacity for growth as an independent scientist.

Passing the preliminary examination requires at least four (4) affirmative votes. Thus, if the preliminary examination committee is composed of four (4) members, one negative vote fails the candidate. If the committee is composed of five (5) or more members a single negative vote does not fail the candidate. Two or more negative votes always fails the candidate. If the chair of the committee casts a negative vote, the student fails the examination.

In the case of failure, the committee may determine that the deficiencies that led to failure are potentially correctable and permit the student to retake the examination with the second preliminary examination to be taken between three and six months after the date of the first. **The committee must retain its original membership for the retake of the preliminary exam. No professors may be substituted unless there are exceptional circumstances.**

If the committee concludes that the student should not be allowed to retake the preliminary examination, or if the student fails the second preliminary examination, then the student may be either excluded from the graduate program altogether, or allowed to write and defend a thesis for the MS degree (see the Master's Program section of the Graduate Student Handbook for more details). In the latter case, the committee in conjunction with the DGS will specify a timeline for completion of the Master's degree. Failure to pass the Preliminary examination by the end of the fall semester of year three will result in exclusion from the PhD program.

H. Oral Presentation Requirement

The ability to make an effective oral presentation is an essential skill for every PhD chemist, and this skill is best developed through experience. To ensure that PhD students have a sufficient range of such experiences, the department requires that each graduate student give at least two formal, public scientific presentations with at least one of them oral (as opposed to a poster presentation) during their graduate career. The student should provide the Director of Graduate Studies office with appropriate documentation of these presentations and include on their annual report. For example, such presentations might be given at local, regional, or national meetings of the American Chemical Society or other appropriate professional organization, or as part of a seminar program at Duke or other academic institution. To help defray the expense of attending professional meetings Conference Travel Awards are available through the Graduate School to students who have passed the preliminary examination, once per fiscal period (**June 1-May 31**). Details can be found at:

<https://gradschool.duke.edu/financial-support/find-funding/conference-travel>

Students may find the various workshops offered by Duke's Center for Instructional Technology or the Center for Teaching, Learning, and Writing to be of help in developing aspects of their presentation skills. Graduate Student [Professional Development](#) at the Graduate School has many helpful resources for students to hone their writing and presentations skills. Students are strongly encouraged to attend the departmental seminar series, not just to hear about science, but also to learn by example the art of giving an effective presentation.

The presentation requirement is in addition to group meeting presentations or more focused

presentations given to the examination committees at the preliminary and propositional examinations, and to the public seminar given at the PhD defense. Together, these various presentations will expose students to the range of presentation types they will encounter in their professional careers.

I. Research Propositional Examination

All PhD students are required to pass a research propositional examination in which they defend an original research proposal in front of a three-member faculty panel during the fall semester of year four. The preparation and presentation of the research proposal provides the student with a mechanism for developing the ability to conceive, evolve, plan, and defend an original research project independent of the research advisor. The primary intellectual content of the proposal must represent a significant departure from the student's dissertation research, so that it represents an independent intellectual exercise.

In preparation for this examination, the student shall submit a completed pre-submission form (**Appendix VI**) of no more than 1-page that briefly summarizes the proposed research describing what is and what is not known about the research area so that the gap in knowledge to be filled by the proposed research is clear. The pre-submission form with the advisor's signed approval should be submitted to the DGSA office by **August 29** of the summer following academic year three. The DGS will then appoint several three-member faculty panels who will review the abstracts and later carry out the examinations. Each abstract will be reviewed by the members of the appropriate panel, who will each indicate to the student whether they approve the proposal topic or require a revision. If a revision is necessary the committee will provide feedback and comments for making the appropriate revision. The student should receive this feedback by **September 12**. If revisions are necessary, the student should revise the proposal or initiate a new one to the satisfaction of the panel, with the revised pre-submission form due **September 26**. The deadline for final approval of the pre-submission form is **October 3**. Students are encouraged to discuss ideas with their advisor prior to submitting a pre-submission form. The goal of this pre-approval process is to ensure that the proposed research topic is generally in keeping with expectations and sufficiently removed from the dissertation research of the student. **The pre-submission form is included as Appendix VI.**

The propositional examinations will be administered by a three-member faculty panel (appointed by the DGS) generally during the first three weeks of November. No later than **October 24**, the student should submit a PDF of the research proposal to the DGSA which will be provided to the examining panel; the recommended length for the written proposal is 4-6 pages. The examination itself shall not take more than one hour. At the beginning of the examination, the student will be given **15 minutes** to summarize the proposal topic and its significance, to be followed by questions from the panel. At the end of the examination each member of the panel will vote to pass or fail. At least two passing votes by the panel members are required to pass the examination. Comments regarding the examination shall be passed on to the student as well as the individual grades of pass or fail, and, along with a copy of the propositional report, will be made part of the student's record. Should the student's performance be considered unsatisfactory in any aspect, the examining panel may require additional work by the student, and will set a timeline for the successful completion of such additional work. An unacceptable performance may require resubmission of another proposal, an improved version of the original proposal, or any other action deemed appropriate by the examining panel. The decision by the panel members to pass or fail will be based on the following expectations:

- The proposal should be focused and specific, with the written proposal stating the problem to be addressed clearly and succinctly at the very beginning of the document.
- The proposal should identify and address a single scientific problem or hypothesis and develop it fully.
- The proposal should support and defend the significance and originality of the work.
- The proposal should describe the experiments or methodology that will be employed to address the problem.
- The proposal should discuss possible outcomes and interpretations and significance of results.
- For additional guidance in preparing proposals, students may wish to consult the websites of funding agencies that routinely support chemical research, such as NIH, NSF, ACS-PRF, and the Research Corporation. The “Funding Opportunities” section of the Duke Office of Research Support web-site at <https://ors.duke.edu/> also has links to various “Grant Writing Resources” that can provide additional help.

J. Dissertation

The Chemistry PhD dissertation is a comprehensive report of original research conducted under the supervision/direction of a faculty advisor. The dissertation should include a comprehensive study on the research topic, detail related to the research conducted, analysis of outcomes of research conducted and understandable by chemists not familiar with this specialized field.

PhD dissertations are expected to contain new information that will be published in a reputable chemical journal, or the equivalent. All doctoral dissertations will be published electronically through [ProQuest/UMI Dissertation Publishing](#), a comprehensive electronic service for publishing, archiving, and disseminating graduate research. Dissertation and theses will be available on [DukeSpace](#), in addition to ProQuest, once any embargo term placed on the document by the student author has expired.

A guide for the preparation of Theses and Dissertations is available at the Graduate School web address: <https://gradschool.duke.edu/sites/default/files/documents/ETD%20Guide%202020.pdf>

K. Final Examination

The final PhD examination is scheduled once the dissertation is completed to the satisfaction of the research advisor. Leading up to the defense, the document is uploaded to ProQuest, the student meets with a representative from the Graduate School and a format check is completed. The examining committee is typically the same as for the preliminary examination although exceptions do occur. A one-page abstract of the dissertation (PDF) should be given to the DGS Assistant at least one week prior the exam for publicity purposes. Additional arrangements for the final PhD examination are described in the Appendices to this handbook.

The final PhD examination is the culmination of the doctoral program and consists of a public seminar followed by a closed examination (generally one to two hours in duration) of the candidate's dissertation work and assessed by the PhD supervisory committee. In the public seminar the candidate has the opportunity to present/explain the essence of his/her research to the examining committee and the general public in attendance. In the closed-door exam, the candidate defends the dissertation in more specific detail before the PhD committee exclusively. The dissertation should be submitted to the examining committee **no less than** two weeks before the scheduled final examination to allow sufficient time for review; failure to do so may result in the examination having to be rescheduled, possibly to the following semester which will impact enrollment with potential

financial risk to the student. Additional details and instructions for preparing the dissertation, submission and for setting up the defense can be found at the Graduate Student web address: <https://gradschool.duke.edu/academics/preparing-graduate>

L. Seminar Program

Departmental seminars are an integral and essential component of graduate studies and of the intellectual and professional life of the department. They provide an opportunity to learn about the latest techniques, theories, methodologies, and exciting research areas. Additionally, they present an opportunity to exchange ideas and interface with colleagues and visitors and provide another venue for observing examples of giving an effective oral presentation.

M. Academic Standards for Continuation in the PhD Program

The Graduate School formally requires a minimum Graduate Grade Point Average (GPA) of 3.0 as a condition for continuation in a given graduate program. Consistent with this policy, a GPA of 3.0 or better on 22 units of graded courses will be required for continuation in the chemistry PhD program.

The Graduate School Grading System	
A+	4.0
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
F	0.0
NC	0.0

Note: In the Chemistry Department, full-semester chemistry doctoral-level 500+ courses are counted as 4 credits and half semester courses as 2. Doctoral level courses in other natural science departments count as 4 or 2 toward the chemistry doctoral degree 22-credit requirement, depending on the length of the class. However, the Graduate School counts the courses towards a 30-credit Master's degree solely on the basis of their credit listing in DukeHub (example: a 3 credit graduate biochemistry course will count as 3 credits for a Master's degree by the Grad School).

To monitor academic progress, the GPA for each student will be determined by the DGS office at the end of each semester of study. If a student's performance at the end of the first semester of graduate study indicates that he/she is unlikely to qualify for continuation in the PhD program unless

his/her performance substantially improves, the student will be placed on academic probation. At the end of the first year, a Continuation Committee makes recommendations on all first-year students as soon as possible after course grades become available for the spring semester. This Committee is composed of the Director of Graduate Studies, the Department Chair, and the Student's PhD advisor or one other member of the departmental faculty. On the basis of the course record of the student, the Committee typically recommends one of the following: (1) that the student continue with the prescribed doctoral program, (2) that the student remain no more than one additional year to complete a master's degree, (3) that the student is not eligible to continue in a degree program in the department. It should be noted that a GPA of 3.0 or better is not a guarantee of continuation in the PhD program, although continuation generally is recommended in such cases. In the case of a student who does not complete the required 22 units of course work until the end of the third semester, the Director of Graduate Studies shall review the GPA again following the end of the third semester. If the GPA falls below 3.0, the Continuation Committee will make a recommendation on the status of the student in the program following the procedures described above for the first-year continuation evaluation.

At the completion of the first year of study, students not achieving the necessary minimum grade point average (3.0) required for good standing, will receive a letter from the Dean of the Graduate School detailing their academic standing. In general, this will be based on the student's performance in the academic course work taken during the first year in the program (see Section M). If the student has not achieved the necessary minimum grade point average (3.0) required for good standing, in most instances the student will be placed on academic probation with specific performance expectations for the upcoming academic year spelled out in detail. In rare instances, if the student's academic performance in the first year has been unusually weak, the student's graduate program may be terminated.

In addition to the academic standards set forth by the department, it is important to be aware of the academic regulations of the Graduate School, in particular the regulation that a grade of F in a major course normally results in mandatory dismissal from a degree program; a grade of F in any other course occasions at least academic probation."

N. Review of Professional Progress of Advanced Students

The Graduate School requires all graduate students beyond their initial year of study to file annually with the Director of Graduate Studies a written report that details their progress towards the PhD degree. For second year students in Chemistry, this report can be the document that was submitted as part of the preliminary examination during the spring semester.

All chemistry graduate students in their third year of study and beyond are required to submit an annual progress report, the guidelines for the preparation of which are presented below. This report serves as the basis for the department's annual review of the academic progress of its advanced graduate students. By the end of **April**, each student should submit copies of this report to the DGSA who will forward to his/her research advisor and to the other members of their PhD supervisory committee. By **mid-May**, the DGS is required to certify to the Graduate School that all reports from advanced chemistry students have been received.

The Annual Progress report must include the following sections:

Section I. **Cumulative summary of degree requirements**

This section shall list progress and status on all program and degree requirements.

Please include a cumulative account since matriculation into the program.

Section II. **Accomplishments relevant to student's scientific and professional development**

This section shall include a list of completed written work, awards or recognitions received, or other service, leadership or activities of professional relevance not captured in the formal degree requirements.

Section III. **Prospectus of dissertation research**

A one-page statement of the goals and specific aims of the research. The statement should point to the significance of the research, place the research in the context of past and ongoing work in the field, and briefly summarize the preliminary results to date and prospects for ongoing and future work.

Section IV. **Draft Dissertation Outline**

An outline, or roadmap, of what the dissertation may look like. It is recognized that this is a *work in progress* and that research benchmarks are likely to evolve and shift over the remaining years up to the defense. Outlines in the 4th year or beyond are likely to be more detailed than those in the 3rd year.

Annual progress reports will be evaluated in the following ways:

The dissertation advisor will evaluate the student's progress using the following metrics: background knowledge, understanding of the experimental system, motivation/effort, experimental skills, critical thinking, communication skills, creativity, and productivity. The dissertation advisor will also note any concerns about the student's progress as well as identify what areas of emphasis will be most impactful to the student's progress toward a successful dissertation. If the student would benefit from a committee meeting, the dissertation advisor will also note this.

The student's dissertation committee members will also provide general comments on the students' progress as well on whether or not a committee meeting is needed.

If a student's progress is deemed unsatisfactory by the research advisor and/or committee members the DGS is to be notified by the dissertation advisor, and the student's PhD advisory committee must be convened as soon as possible but no later than October 1.

In the case of rising fifth year and beyond students, the PhD supervisory committee will meet early in the fall semester (**no later than Nov. 30**). Using the annual progress report as a discussion starting point, it is expected that this meeting will last thirty minutes or less as the committee determines the student's professional trajectory, including developing post-graduation plans. At the conclusion of the meeting the research director will provide the DGS with a summary of any specific recommendations. The research director will also convey the sense of the committee to the student.

The annual reports are meant to create a positive sense of direction for the student and enhance communication between the student, research advisor, and supervisory committee. Its purpose is to confirm the student is making adequate academic progress towards their degree. Alternatively, the annual report serves as a mechanism to identify, prevent and address behavior/conduct which may adversely impact a successful academic trajectory and serves to aid and direct the student at all stages of the PhD program.

O. Expectations Regarding Responsible Scholarship

Duke University and the Department of Chemistry expect graduate students to adhere to the highest standards of academic and professional conduct in their roles as students, teachers, and researchers. The expectations of the University with respect to standards of conduct and academic integrity can be found on the Graduate School website at:

<https://gradschool.duke.edu/academics/academic-policies-and-forms/standards-conduct>

and at the Academic Integrity Council website at:

<http://integrity.duke.edu/>

For information on how to properly cite sources and avoid plagiarism students are referred to the Duke University Library website at:

<http://library.duke.edu/research/guides/citing/>

Most students are probably familiar with how these issues apply to print materials, but may be less certain in the case of web-based materials or published figures, for example. Students are encouraged to consult the above website for more information and to consult with their research advisor or other chemistry faculty regarding proper guidelines.

To ensure that graduate students have proper training in the Responsible Conduct in Research (RCR), Duke University requires all PhD students to participate in 12 hours in RCR training as a formal requirement to obtain the degree. To satisfy this requirement, each PhD student must attend one Fall Orientation RCR Workshop and participate in at least three (2-hour) supplementary RCR Forums within the **first three years** of his/her program. Please be reminded of the following, and review the RCR web site (links below):

Fall 2022 RCR Orientation Class (Required for all entering PhD students)

HUMANITIES, SOCIAL SCIENCES, NATURAL SCIENCES AND ENGINEERING

Online via Zoom

Thursday, August 25, 2022

9:00 a.m. to 12:00 p.m. (EDT)

Participation in this orientation also earns credit for GS714 & GS715

[Registration & more information](#)

Any PhD matriculate who cannot attend (due to visa delays, overseas study, etc) must contact hugh.crumlev@duke.edu to request permission for delaying RCR Orientation until the next year. RCR Orientation is not optional -- it must be completed, and the sooner the better. The university has nearly 450 entering PhDs each year that must fulfill this requirement.

The Graduate School will monitor each student's participation in RCR training and the student's degree will be audited (before being issued) to ensure this requirement has been met. More information on this requirement and on the various workshops can be found on the Graduate School

website at:

[RCR](#)

The Duke Community Standard

Duke University is a community dedicated to scholarship, leadership, and service and to the principles of honesty, fairness, respect, and accountability. Citizens of this community commit to reflect upon and uphold these principles in all academic and non-academic endeavors, and to protect and promote a culture of integrity.

To uphold the Duke Community Standard:

- I will not lie, cheat, or steal in my academic endeavors;
- I will conduct myself honorably in all my endeavors; and
- I will act if the Standard is compromised.

Standards of Conduct

Graduate students at Duke University freely choose to join a community of scholarship predicated on the open exchange of ideas and original research. At Duke University, students assume the responsibility to foster intellectual honesty, tolerance, and generosity and to encourage respectful debate and creative research. By accepting admission to Duke University, graduate students pledge to uphold the intellectual and ethical standards of the University, as expressed in the *Duke Community Standard*, to respect the rights of their colleagues, to abide by University regulations, and to obey local, state, and federal laws. The Graduate School and the University specifically prohibit the following:

1. *Lying*: Knowing misrepresentations to gain illicit benefit or to cause harm to others. Examples include misrepresentation in applications for admissions or financial aid, lying during a formal inquiry by the University, and false accusations of misconduct by others.
2. *Cheating*: A dishonest or unfair action to advantage an individual's academic work or research. Such dishonesty would include the falsification of data, plagiarism, and tampering with another person's documents or research materials.
3. *Theft*: Misappropriation of property, services, credentials, or documents. Theft includes the misuse or willful damage of University property, equipment, services, funds, library materials, or electronic networks.
4. *Harassment*: The creation of a hostile, intimidating, disrespectful environment based on race, religion, gender, ethnicity, or sexual orientation, in which verbal or physical conduct, because of its severity or persistence, is likely to interfere significantly with an individual's work or education, or affect adversely an individual's living conditions. Duke University is committed to protecting academic freedom for all members of the university community. This policy against harassment is, therefore, applied so as to protect the rights of all parties to a complaint. Academic freedom and freedom of expression include but are not limited to the expression of ideas, however controversial, in the classroom, residence hall, and, in keeping with different responsibilities, in workplaces elsewhere in the university community.
5. *Sexual harassment*: Coercion through speech or action for sexual purposes. Examples include verbal or written threats, unwanted sexual solicitation, stalking, and the use of a position of authority to intimidate or coerce others. Duke teaching personnel, employees, and graduate students are expected to report *consensual sexual relationships* between individuals in a supervisory or teaching

relationship to their superiors. Examples of such supervisory/teaching relationships include: instructor and student; advisor and student; and supervisor and staff member.

[Guide to report harassment, discrimination, and other concerns.](#)

6. *Assault*: An attack on another person resulting in either physical or psychological injury.
7. *Possession of illicit drugs on University property or as part of any University activity*: Students are prohibited to manufacture, sell, deliver, possess, or use a controlled substance without legal authorization. The North Carolina Controlled Substances Act defines a controlled substance as any drug, substance or immediate precursor, including but not limited to opiates, barbiturates, amphetamines, marijuana, and hallucinogens. Possession of drug paraphernalia is also prohibited under North Carolina law and University policy. Drug paraphernalia includes all equipment, products and material of any kind that are used to facilitate, or intended or designed to facilitate, violations of the North Carolina Controlled Substances Act.
8. *Refusal to comply with the directions of a University police officer*. Students must comply with the lawful directions of the University police. In addition, *interference with the proper operation of safety or security devices*, including emergency telephones, door locks, fire alarms, smoke detectors or any other safety device is prohibited.
9. *Trespassing*: Students may not enter University property to which access is prohibited.
10. *Possession of explosives, incendiary devices, or firearms on University property*. Students are expected to meet academic requirements and financial obligations, as specified elsewhere in this bulletin, in order to remain in good standing. Failure to meet these requirements and to abide by the rules and regulations of Duke University may result in summary dismissal by the Dean of the Graduate School or the Provost. In accepting admission, students indicate their willingness to subscribe to and be governed by these rules and regulations and acknowledge the right of the university to take disciplinary action, including suspension and/or expulsion, as may be deemed appropriate for failure to abide by such rules and regulations or for conduct adjudged unsatisfactory or detrimental to the university.

Student Grievance Procedures.

It is the responsibility of the director of graduate studies to inform each graduate student of the appropriate channels of appeal. In normal circumstances, the director of graduate studies is the first to hear a complaint. If the complaint cannot be resolved satisfactorily at this level, the student may address, in turn, the department chair, the associate dean of the Graduate School, and the dean of the Graduate School, who shall be the final avenue of appeal. An appeal must be filed in writing with the next appropriate university officer within ten days after a decision has been formally rendered by any of the university officers mentioned above.

Judicial Code and Procedures

In the spring of 1971, the Graduate School community ratified and adopted an official judicial code and procedures. These procedures were subsequently amended in November, 1998, and in May, 2007.

Graduate School Judicial Code and Procedures

1. A student, by accepting admission to the Graduate School of Duke University, thereby indicates willingness to subscribe to and be governed by the rules and regulations of the University as currently are in effect or, from time to time, are put into effect by the appropriate authorities of the

University, and indicates willingness to accept disciplinary action, if behavior is adjudged to be in violation of those rules or in some way unacceptable or detrimental to the University. However, a student's position of responsibility to the authorities and the regulations of the University in no way alters or modifies responsibilities in relation to civil authorities and laws.

2. A graduate student at Duke University stands in a primary and unique relation of responsibility to the faculty in the major department, the faculty upon whose recommendation a graduate degree will or will not be awarded to the student. In matters which involve or may affect the student's intellectual or professional life, the student is directly responsible to this department and its representatives, and such matters should primarily be handled by the department.
3. Actions which appear to conflict with University-wide rules and regulations will fall under the jurisdiction of the University Judicial Board.
4. A student may elect to have the dean of the Graduate School hear matters related to the student's conduct in addition to or instead of faculty members from the student's major department, or may elect to have such matters reviewed and judged by a Judicial Board instead of the dean of the Graduate School or members of the faculty in the major department. (The constitution and procedure of the judicial board are detailed below.)
5. The director of graduate studies or the chair in the student's major department may request that a student's actions be reviewed by the Judicial Board or by the dean of the Graduate School.

The Graduate School Judicial Board

1. *Composition.* The Graduate School Judicial Board shall have five members, serving for a period of two years: two graduate students appointed from the student body by the dean of the Graduate School with the advice of the Graduate and Professional Student Council, two members of the graduate faculty appointed by the Executive Committee of the Graduate Faculty, and one associate or assistant dean appointed by the dean of the Graduate School. The Board shall elect one of its members as chairman. The Board shall have at its service a recording secretary to keep minutes of the hearings and of the Board's actions in a permanent, confidential record book. The Board will be constituted in order to hear cases in which the accused is a student currently enrolled in the Graduate School and in cases in which the accused is a former student but which arise out of activities of the accused while a student enrolled in the Graduate School, and which have been referred to it by the director of graduate studies or the chair in the student's department, by the dean of the Graduate School, or by the student.
2. *Preliminary Procedures.* If a student requests a hearing by the Judicial Board it must be done in writing, allowing its chairman at least seventy-two hours to convene the Board. In addition, the chairman shall not convene the Board until seventy-two hours after being asked to convene the Board. It is the responsibility of the chairman of the Judicial Board fully to inform its members concerning the case and the reasons the case has been referred to the Board; and to prepare a written summary of this information for the Board, the dean, and the student.
3. *Procedural Safeguards for the Hearing.* The accused has the right to challenge any member of the Judicial Board on grounds of prejudice. If the Board decides to excuse one or more of its members for reasons given by the accused, it shall consult with the dean about the need for replacements. The accused may choose an advisor to assist in the hearing. The advisor must be a current Duke student, a current Duke Faculty member, or a current Duke employee. The role of the advisor is to assist and support the student through the disciplinary process. The advisor may not address the hearing panel or any witness during the hearing. The accused may also produce witnesses (including no more than two character witnesses), introduce documents, and offer testimony. A person having direct knowledge relevant to a case being heard by the Board is a material witness. The Judicial Board may request the appearance of material witnesses. The Board shall also request, upon written request of the complainant or the accused, the appearance of material witnesses. Witnesses shall be notified

of the time, place, and purpose of their appearance. The accused has the right to examine the written statement of any witness relevant to the case at least seventy-two hours before the hearing. The accused has the right to be faced with any witness who has given a statement relevant to the case at the hearing if the witness's attendance can be secured.

The hearing will be conducted in private unless the accused requests an open hearing. If any objection is raised to conducting an open hearing in any particular case, the Judicial Board shall decide the issue by majority vote. If the decision is made not to hold an open hearing, the accused shall be informed in writing of the reasons for the decision. The Judicial Board shall consider only the report of the chairman, documents submitted into evidence, and the testimony of witnesses at the hearing in reaching its decisions.

4. *Conduct of the Hearing.* The hearing of any case shall begin with a reading of the charge by the chairman in the presence of the accused. The accused shall then plead guilty or not guilty or move to terminate or postpone the hearing. The accused may qualify a plea, admitting guilt in part and denying it in part. The accused may not be questioned for more than one hour without recess. At any time during the hearing, the accused or the Judicial Board may move to terminate or to postpone the hearing or to qualify the plea or to modify its charge.

Pending verdict on charges (including appeal) against the accused, status as a student shall not be changed, nor the right to be on campus or to attend classes suspended, except that the provost may impose an interim suspension upon any member of the University community who demonstrates, by conduct, that continued presence on the campus constitutes an immediate threat to the physical well-being or property of members of the University community or the property or orderly functioning of the University.

5. *Appeals.* The appellant may submit to the dean a written statement containing the grounds for appeal and arguments. In such cases, the dean should determine if the appeal should be granted, and the dean can hear the case, or refer it to the appropriate faculty in the student's department or to the Judicial Board.
6. *Sanctions and the Verdict.* The Graduate School Judicial Board shall have the power to impose the following penalties: expulsion (dismissal from the University with the recommendation that the person never be readmitted); suspension (dismissal from the University and from participation in all University activities for a specified period of time, after which the student may apply for readmission); disciplinary probation (placing the student on a probationary status for a specified period of time, during which conviction for violation of any regulation may result in more serious disciplinary action); restitution (payment for all, or a portion of property damage caused during the commission of an offense). Restitution may be imposed by itself or in addition to any of the other penalties. In the case of a student who is not currently at Duke or who has already graduated, such sanctions could include revocation of the degree. The Judgment shall consist of a finding of guilty or not guilty of the charge and, when the accused is found guilty, a statement of the punishment assessed. On all questions, including the verdict and the finding of guilty or not guilty, the Board shall be governed by a majority vote. The Judicial Board may decide to rehear a case in which significant new evidence can be introduced. In addition, the defendant may request an appeal. An appeal shall be granted on the following grounds: procedural error substantially affecting the rights of the accused; incompatibility of the verdict with the evidence; excessive penalty not in accord with "current community standards;" new evidence of a character directly to affect the judgment but on which the original tribunal had refused a new hearing.

P. Appointments and Vacation Periods

The normal appointment period for full-time research assistants and teaching assistants is from September 1 to May 31 in a given academic year. Students are also normally expected to be in residence and carrying out research during the summer semester. Summer appointments extend

from June 1 to August 31. Some research assistants may be on 12-month appointments (September 1-August 31).

All students are expected to be in residence **one week before the beginning of classes** for the fall and spring semesters. First year students are expected to be in residence 2 weeks before the beginning of classes for departmental and Graduate School Orientation. For 2022 - 2023 academic year the first day of Chemistry Orientation is **August 15, 2022** and fall semester classes start **August 29, 2022**. In addition, students holding teaching appointments during the summer must be in residence one week prior to the summer term(s) of their appointment.

Teaching Assistants must complete all of their teaching responsibilities before leaving at the end of a semester and should consult with the Laboratory Managers before making any vacation and travel arrangements.

Arrangements for vacation periods should always be made in consultation with and the consent of the research advisor. Please refer to the [Duke Graduate School Student Time-Off Policy](#).

Q. Master's Program

Students are only admitted to the PhD program. Students subsequently placed in the MS program by choice, or by not making satisfactory progress in the PhD program, are required to complete the registration requirements of the Graduate School, including a total of 30 units of registration, 24 of which must be taken for a grade. Of the required 24 graded units, at least six units must consist of graduate level course work taken in a field (or fields) of chemistry other than the field of specialization. Students who begin in the PhD program would normally satisfy these requirements with the 22 units of graded coursework required for the PhD, along with additional units of graded research taken during the second year (Chem 801). A thesis or non-thesis option is available to students who have not advanced to PhD candidacy (i.e., passed their preliminary examination).

Thesis Option. The thesis option requires the defense of a thesis in an oral examination with a three-member MS supervisory committee assigned according to the regulations of the Graduate School (the committee would normally be a subset of the original PhD supervisory committee). The final examination for M.S. degree (thesis option) is oral and is typically one to two hours in length. The major portion of the examination is on the thesis, but general questions on both chemistry and subjects taken as related work are in order. The Master's thesis should be submitted to the student's committee no later than two weeks before the scheduled examination. Additional arrangements for and details of the final Master's examination can be found in the Appendices to this Handbook. The Master's defense consists of a seminar followed by an oral exam. The student has the option of requesting a public or private seminar, but the oral exam is closed, with only the student and faculty committee members present.

Non-Thesis Option. The non-thesis option is only open to students who have not yet advanced to PhD candidacy. The non-thesis option requires the preparation of a final examination document prior to (and considered part of) the final examination for the non-thesis MS degree. The document should identify a research problem in a specific area of Chemistry, provide the necessary background to place the chosen research problem in the context of past and ongoing work in the research area, and present a research plan (including the overall strategy, methodology, and analyses) that could be used to address the proposed research problem. The body of the document should contain no more than 2500 words not counting figures, references and any appended materials (e.g., more detailed information regarding the research plan). Students are encouraged to consult the ACS Style Guide and/or research journals in their research area for guidance on matters

of reference style and format.

The examination for the non-thesis M.S. degree is oral and is typically one to two hours in length. As part of the examination, the student will present a brief (no longer than 20 minute) overview of the examination document. The balance of the examination will involve questions from a supervisory committee consisting of at least 3 members assigned according to the regulations of the Graduate School. The committee will evaluate the student's general and specific background knowledge of Chemistry especially as it relates to the proposed research project. The decision to pass or fail a student at an examination for the non-thesis M.S. degree will be based on material in the written examination document, the presentation of the research problem and plan, and performance during the questioning portion of the exam. Specifically, students will be evaluated on the following:

- Fundamental understanding of the research area associated with the selected research problem;
- Specific understanding of the research project and its significance;
- Ability to describe the proposed experiments.

Additional details on these regulations can be found at the Graduate School web address:

[MS Degree Requirements \(page 56\)](#) or [APPENDIX V](#) of this document

R. Fellowship Opportunities

Most students decide to apply for fellowships during the first term on campus. The application process offers one of the most educational, impactful opportunities of a graduate career. ***Students are urged to apply to ALL fellowships for which you are eligible*** (and willing to engage in associated commitments). Students are eligible for many fellowship applications only during the first term of graduate school, and are therefore encouraged to begin applications on arrival.

Fellowship advice to students:

- (1) Many fellowships require submission of GRE scores, transcripts, and letters of recommendation. Send GRE scores and transcripts to all appropriate fall fellowships once on campus, and to request letters of recommendation once a resume has been polished.
- (2) Peers are among the most valuable resources in starting this process. Find someone who has applied, and look at previous NSF GFRP fellowship applications to get a sense of formatting and content opportunities.
- (3) Seek constructive feedback on resumes and application documents from peers, and then from prospective mentors.
- (4) Consider working on preparation of research proposals with someone you are considering as a graduate advisor.
- (5) Consider requesting a letter of recommendation from someone with whom they consider as a graduate advisor.

An ongoing list of potential funding opportunities can be found [here](#).

A more focused list of fellowship opportunities for entering graduate students who are US citizens and permanent residents can be found at: <http://people.chem.duke.edu/~jlr67/fellowships.html>. Among these are the National Science Foundation fellowships, National Defense Science and Engineering Graduate Fellowships, Department of Energy Computational Science Fellowships,

Hertz Foundation Graduate Fellowships, Ford Foundation Fellowships, the GEM Fellowships, National Physical Sciences Consortium Fellowships, Smithsonian Institute Fellowships (Material Science), Department of Homeland Security Fellowships, and NASA Earth and Science Space fellowships, the United States Environmental Protection Agency fellowships. International students are encouraged to work with prospective mentors to identify the most relevant fellowship applications.

III. Normal Timeline for the PhD

FIRST YEAR STUDENTS

Fall:

- Attend RCR Orientation, which takes place week before classes start to complete 6 of the required 12 RCR credits
- Register for Continuation, Chem 701, and 8-12 credits of graduate science classes
- Complete 3 lab rotations
- Register for any English courses deemed necessary for international students (if student can register for only one, Oral English course recommended first)

Spring:

- Chair's office will finalize formal affiliation with Primary Investigator
- Register for Continuation, Chem 701, and 6-10 credits of graduate science classes
- Register for any English course deemed necessary for international students
- Attend RCR Forums when available, each worth 2 credits towards required 12

Summer:

- Register for Continuation

SECOND YEAR STUDENTS

Fall:

- Register for Continuation
- Register for remaining courses necessary to achieve 22 graduate science credits
- Register for Chem 801 Research, 6 credits
- Complete all required English courses for international students by end of this semester
- PI submits recommendation for supervisory committee. PI may consult with student or make the decision alone. Supervisory committees finalized by DGS office in December
- Attend RCR Forums when available, each worth 2 credits towards required 12

Spring:

- Register for Continuation
- Register for Chem 801 Research, 6 credits
- Turn in preliminary examination document to DGS office with copies for all supervisory committee members in early March
- Supervisory committee members return preliminary examination document, with comments and evaluation, to DGS office to be passed back to students for revision of document. Mid-March
- Submit finalized prelim document to supervisory committee at least one week in advance of the prelim exam.
- Attend RCR Forums when available, each worth 2 credits towards required 12

Summer:

- Register for Continuation

THIRD YEAR STUDENTS

Fall:

- Register for Continuation
- Work towards meeting Oral Presentation requirements by this point

Spring:

- Register for Continuation
- Turn in to DGS office Annual Progress Report summing up academic milestones and research completed during that academic year in mid-April

Summer:

- Register for Continuation
- Propositional abstract due to Asst. office Aug. 24
- Prop committee will return approved or unapproved prop abstracts with comments and evaluation to Asst. to DGS to return to student in September 6
- Submit revised abstract for review by prop committee by Sept. 17
- All RCR requirements should be complete by now

FOURTH YEAR STUDENTS

Fall:

- Register for Continuation
- All propositional abstracts approved by committee by Sept. 24
- Submit finalized written version of the research proposal to be provided to the examining panel by Oct. 15
- Sit propositional exams during first 3 weeks of November

Spring:

- Register for Continuation
- Annual Progress Report summing up academic milestones and research completed during that academic year due in mid-April

Summer:

- Register for Continuation

FIFTH YEAR AND BEYOND STUDENTS

- By this time, students have presented often enough to have fulfilled the 2-presentation requirement. One of them must be an oral presentation.
- Turn in to DGS office Annual Progress Report summing up academic milestones and research completed during that **academic year in mid-April**
- Students should be working toward completing dissertation in the next year

***** The department will not support students through department funding as TAs after completing 5 years in the program. Students will be eligible to receive support through either 1) faculty supported positions, (such as RA) 2) external funding mechanisms or 3) inter-departmental programs*****

IV. Registration Guidelines

A. Registration for summer and fall

With the exception of new entering students who register for the fall prior to their arrival at Duke,

registration for both summer and fall semesters is done during the spring semester. All students need to be sure to register for continuation for both summer and fall, and registration for the summer should be for summer term II. Below we give separate registration guidelines for students according to their year with regard to the fall semester.

All students must register for *Continuation* for fall, spring and summer term II, regardless of course enrollment....

Note: Chemistry graduate students normally do not register for courses during the summer: special arrangements and permission form the Director of Graduate Studies would be required to do so. Since no doctoral level courses are offered during the summer, PhD students typically do not register for classes during summer session. Tuition for any courses taken for the summer must be paid from non-departmental funds, typically at the students' personal expense.

First Year Students: 12-22 units of graded courses
1 unit of CHEM 701 – Research Orientation Seminar

Note: Students wishing to take courses outside the department should obtain prior approval from the Director of Graduate Studies.

First Year International Students: 700-level English courses, as required by placement tests

Second Year Students: 6 units of CHEM 801 – Graded Research (both fall & spring semesters)
Any remaining graded courses necessary to achieve the required total of 22 units.

Note: Students wishing to take courses outside the department should obtain prior approval from the Director of Graduate Studies

Third Year and Beyond Students Continuation every semester

B. Registration for spring

Registration for spring semester is done during the fall semester.

ALL STUDENTS: Continuation

First Year Students: CHEM 701, graded courses necessary to achieve the required total of 22 units, 700-level EIS (International)

Second Year Students: 6 units of CHEM 801– Graded Research – both fall & spring

Third Year and Beyond Students: Continuation every semester

DROP/ADD

Associate Dean for the Graduate School Office of Academic Affairs, Dr. John Klingensmith:

The Graduate Studies office would like to emphasize the importance that all changes in course registrations should take place before the end of drop/add, which is typically 2 weeks after the first day of classes. Any changes thereafter will be treated as course withdrawals and not drops and will thus appear on your student transcript as a W. Moreover, after the end of the drop/add period, we cannot transform audits into courses taken for credit, nor can we do the inverse. The students must make the final decision about the courses he/she are planning to take by the end of the drop/add period.

Students must also take a mandatory sequence of Responsible Conduct in Research credits, consisting of six credits in year 1 and an additional 3 RCR forums. These credits are a Graduate School requirement and completion of these credits will appear on the students' transcript and should be completed by the end of the 3rd year. These credits do not count toward completion of

the Master's or PhD degree.

V. Graduate Courses in Chemistry

Provided below are descriptions for all the chemistry graduate courses that appear in the Bulletin of the Graduate School, with the exception of detailed descriptions for special topics courses that are sometimes offered on an ad hoc basis (the title and synopsis for special topics course offerings will be available on the ACES registration program). Due to staffing and other considerations, not all of these courses are offered every year, some of the courses are offered as 4 unit "full" courses, others are offered as 2 unit "half" courses, and still others are offered as "variable credit," meaning that the number of units for those courses varies depending on the instructor and the semester. Students should contact the DGS office to find out how many units they need to designate when registering for variable unit courses.

Graduate chemistry courses at UNC-Chapel Hill can be found at:

<http://www.chem.unc.edu/courses/>

Graduate courses at NC State University can be found at:

[NC State Graduate courses in Chemistry](#)

Duke Chemistry Graduate Course Descriptions:

501. Analytical Chemistry Fundamental considerations of chemical measurements, optical spectroscopy, mass spectrometry, and separation methods. Instructors: Fitzgerald. 4 units

506. Biomolecular Mass Spectrometry Advanced topics in the mass spectral characterization of biopolymers with an emphasis on protein and DNA analysis. Fundamental and practical aspects of the ionization processes and the instrumentation associated with MALDI- and ESI-Mass spectrometry will be discussed along with applications of these techniques to structural problems in chemistry and biochemistry. Prerequisite: Chemistry 501 or consent of instructor. Instructor: Fitzgerald. 2 units

511. Chemistry of Biomolecular Interactions Chemistry of the noncovalent interactions governing biological systems. Topics include: review of biomacromolecules; chemical principles of non-covalent interactions and the use of model systems; experimental methods to determine binding interactions; interactions responsible for molecular recognition in biological systems; and applications in signal regulation. Recommended precursor to Chemistry 518. Instructor: Hargrove. 4 units

517. Molecules in Life and Disease Molecules are an essential component of life as they dictate our development, enable adaptation to our environment, and carry our thoughts. This course explores the roles of molecules in normal physiological functions and disease states ranging from genetic disorders to those caused by deadly toxins, such as anthraxin toxin. Case studies on bacterial pathogenesis, drug resistance and modern drug development are among the topics that will be discussed. Prerequisites: Organic Chemistry and Introductory Biology or consent of instructor. Instructor: Derbyshire. 4 units

518. Chemical Biology The application of chemical concepts and methods to solving problems in molecular and cell biology, with emphasis on the use of small molecules to elucidate and control information transfer in biological systems. Provides relevant background on both useful chemical tools and new biological targets. Instructors: Hong, Toone, McCafferty, and Wang. 4 units

- 521. Inorganic Chemistry** Bonding and spectroscopy, reactions, transition metal chemistry, main group chemistry, organometallics/catalysis, and solid state. Instructors: Franz and Therien. 4 units
- 524. Bioinorganic Chemistry** Topics covered include metal activated enzymes in hydrolysis, oxygen carriers, nitrogen fixation, iron storage and transport, photosynthesis, protein electron transfer, and DNA mediated electron transfer. Instructors: Crumbliss, Therien, and Franz. Variable credit
- 526. Inorganic Reaction Mechanisms** A discussion of the mechanism of coordination reactions in solution. Examples include redox reactions and linear free energy relationships. Instructor: Franz. 2 units
- 531. Organic Chemistry** Bonding and structure, stereochemistry, conformational analysis, substitution, addition, and elimination reactions, carbon reactive intermediates, concerted reactions, photochemistry, carbon alkylation, carbonyl addition nucleophilic substitution, electrophilic additions, reduction, cycloadditions, rearrangements, main group organometallics, oxidation. Instructors: Baldwin, Craig, Hong, Toone, and Widenhoefer. 4 units
- 532. Organic Reactions** Highlights strategic operations that enable selective synthesis of small molecules, including organic ligands, natural products, and molecular probes. Topics include chemical synthesis and retrosynthetic analysis; arrow-pushing mechanisms of polar, radical, transition metal-mediated and pericyclic reactions; protecting groups, oxidation, reduction, enolate reactivity; stereoselective reactions and conformational analysis; cross-coupling transformations. Instructor: Roizen. 4 units
- 533. Nuclear Magnetic Resonance** Structural elucidation of organic and inorganic compounds by NMR. Fundamentals of data acquisition (pulse sequences, detection), multidimensional techniques, study of dynamic processes and their application to the determination of structure. Instructors: Baldwin and Widenhoefer. Variable credit
- 534. Physical Organic Chemistry** Reactive intermediates: carbocations, carbanions, carbenes radicals, photochemistry. Prerequisite: Chemistry 531. Instructors: Craig. 4 units
- 535. Organic Synthesis** Application of organic reactions to the synthesis of structurally and biologically interesting compounds. Topics include synthetic design, retrosynthetic analysis, synthetic methods, and total syntheses of natural products. Prerequisite: Chemistry 532 or consent of instructor. Instructor: Hong. 4 units
- 536. Bioorganic Chemistry** Basic enzymology, mechanisms of enzymatic reactions, cofactors, oxidoreductases, C1 chemistry, carbon-carbon bond formation, carboxylation/decarboxylation, heme, pyridoxal enzymes, thiamine enzymes. Prerequisite: Chemistry 531 or equivalent. Instructors: McCafferty. 4 units. C-L: Biochemistry 536
- 538. Organometallic Chemistry and Catalysis** Introduction to the structure and bonding of organometallic and coordination complexes, stressing the origin of metal-ligand interactions from a molecular orbital theory perspective. Elementary reactions of transition metal complexes and their application to organic synthesis, with special emphasis on catalytic reactions. General concepts of catalysis and the advantages and benefits of catalytic systems. Instructor: Malcolmson. 4 units
- 541. Quantum Chemistry** Foundations and approximate methods in quantum chemistry, with an emphasis on their applications to molecular structure and modeling. Instructors: Beratan, Liu, MacPhail, Warren, and Yang. 4 units
- 542. Quantum Mechanics** Special emphasis on chemical applications. Topics include: linear algebra, the uncertainty relations, angular momentum, perturbation theory, time-dependent phenomena, molecules in electromagnetic fields, group theory, and electron correlation. Prerequisite: Chemistry 541 or consent of instructor. Instructors: Beratan, Warren, and Yang. 4 units
- 543. Statistical Thermodynamics** Introduction to statistical thermodynamics, with an emphasis on ideal systems and selected model approaches to more complex systems, for example, lattice models. Instructors: Beratan, Charbonneau, MacPhail, and Yang. 2 units

544. Statistical Mechanics Fundamentals of quantum and classical statistical mechanics using the ensemble approach. Introduction of modern techniques and applications including the renormalization group treatment of phase transitions and linear response theory of time-dependent statistical mechanics. Prerequisite: Chemistry 543 or consent of instructor. Instructors: Beratan, Charbonneau, MacPhail, and Yang. 4 units

548. Solid-State and Materials Chemistry Introduction to the structure, physical, and electronic properties of solid-state materials. Instructor: Liu and Wiley. Variable credit

590. Special Topics in Chemistry Special topics in chemistry and chemistry-related areas. Content varies by instructor. Instructor: Staff 4 units.

590-1. Special Topics in Chemistry. Special topics in chemistry and chemistry-related areas. Content varies by instructor. Instructor: Staff 2units

601. Biosensors Theory and applications of biosensors. Basic principles of interactions between analytes and bioreceptors and various transduction techniques: optical, electrochemical, ion-selective electrode-based, voltametric, conductometric, and mass-sensitive techniques as well as novel nanotechnology-based biosensing systems including nanosensors, plasmonic nanoprobe, quantum dots, carbon nanotubes, molecular beacons, and molecular sentinel systems. Applications in chemical, environmental, biological and medical sensing. Paired with Biomedical Engineering 567. Prerequisites: senior or graduate standing or instructor's consent. Instructor: Vo-dinh. 3 units

630. Advances in Photonics 3 units. C-L: see Biomedical Engineering 850

701S. Research Orientation Seminar A survey of departmental research. Required of all entering graduate students in chemistry. Consent of director of graduate studies required. Instructors: All members of the graduate staff. 1 unit.

760S. Seminar One hour a week discussion. Credit/no credit grading only. Instructors: All members of the graduate staff. 1 unit

801. Research Instruction in methods used in the investigation of original problems. Individual work and conferences. 1 to 6 units each. Instructors: All members of the graduate staff. Variable credit

990-0. Special Topics in Analytical Chemistry Advanced topics and recent developments in analytical chemistry. Variable credit. 1 to 4 units. Instructor: Staff. Variable credit

990-1. Special Topics in Biological Chemistry Advanced topics and recent developments in biological chemistry. 1 to 4 units. Instructor: Staff. Variable credit

990-2. Special Topics in Inorganic Chemistry Advanced topics and recent developments in inorganic chemistry. Variable credit. 1 to 4 units. Instructor: Staff. Variable credit

990-3. Special Topics in Organic Chemistry Advanced topics and recent developments in organic chemistry. Instructor: Staff. Variable credit

990-4. Special Topics in Physical Chemistry Advanced topics and recent developments in physical chemistry. Variable credit. Instructor: Staff. Variable credit

995. Graduate Training Internship Designed to allow graduate student in Chemistry to engage in internship lab work and doctoral study with external agencies and institutions for credit, when determined necessary for degree completion. Laboratory work and analysis can be conducted at external institution with permission of immediate faculty supervisor. Permission of instructor required. Instructor: Staff. 1 unit

VI. Useful Web Links for Graduate Students

A. General Links

Duke Reach

<https://studentaffairs.duke.edu/dukereach1>

The Graduate School

<http://www.gradschool.duke.edu>

Graduate Student Affairs

<http://www.gradschool.duke.edu/gsa>

Graduate and Professional Student Council

<http://gpsc.duke.edu/>

Standards of Conduct

<https://gradschool.duke.edu/academics/academic-policies-and-forms/standards-conduct/duke-community-standard>

Academic Integrity Council

<http://www.integrity.duke.edu>

Responsible Conduct in Research

<https://gradschool.duke.edu/professional-development/programs/responsible-conduct-research>

Citing Sources and Avoiding Plagiarism

<http://library.duke.edu/research/plagiarism>

Guide for the Preparation of Theses and Dissertations

<https://gradschool.duke.edu/sites/default/files/documents/ETD-Guide.pdf>

Career Center

<http://www.studentaffairs.duke.edu/career>

Registrar's Office

<http://registrar.duke.edu>

Bursar's Office

<http://finance.duke.edu/bursar/>

Bursar's Office: Payroll Deduction

<http://finance.duke.edu/bursar/Payments/index.php#pd>

Housing

<https://www.nearduke.com/housing>

Safety

<http://www.safety.duke.edu>

Duke Student Health Service

<http://www.studentaffairs.duke.edu/studenthealth>

B. Links for International Students

International House

<http://www.studentaffairs.duke.edu/ihouse>

Visa Services

<http://www.visaservices.duke.edu/>

English for International Students

<https://gradschool.duke.edu/academics/english-international-students>

C. Interdisciplinary Programs and Centers

Bioinformatics & Computational Biology

<http://www.genome.duke.edu/CBB/certificate/>

Bioinformatics and Genome Technology

<http://www.genome.duke.edu/>

Biomolecular and Tissue Engineering

<http://bme.duke.edu/research/biomolecular-tissue-engineering>

Computational Science and Engineering

<http://www.cs.duke.edu/>

Integrated Toxicology and Environmental Health Program

<http://sites.nicholas.duke.edu/envhealth/>

Nanoscience and Nanoengineering

<http://nano.duke.edu/>

Pharmacological Sciences (PSTP)

<https://pharmacology.duke.edu/training/graduate/pharmacology/pharmacological-sciences>

Structural Biology and Biophysics

<http://sbb.duke.edu/>

University Program in Materials Science and Engineering

<https://trinity.duke.edu/initiatives/materials-science>

APPENDIX I

Registration Procedure and Information

You may access DukeHub at the URL: <https://registrar.duke.edu/registration/about->

registration. Instructions on how to register for courses can be found on the chemistry website at: <http://chem.duke.edu/graduate/registration>.

MAKE SURE YOU HAVE EMPTIED YOUR BOOK BAG

Drop/Add Rules

It has been emphasized the importance of making all course registration changes before the end of the drop/add period. The Dean's office will be very strict in respecting the drop/add cutoff date which is **September 3 at 5:00 p.m.** for the fall 2022 semester. All changes in course registrations should take place before the drop/add. Any changes thereafter will be treated as course withdrawals (W) and not drops and will thus appear on the student's transcript. Moreover, after the end of the drop/add period, you cannot transform audits into courses taken for credit, nor can the Dean's office do the inverse. Students must make their final decisions about the courses they are planning to take by the end of the drop/add period on **September 3, 2022.**

Late Registration Fee:

You will be charged a \$50.00 late fee if you do not register by the deadline.

Scheduling for a PhD or Master's Examination in Chemistry

1. At the start of each semester the Assistant to the Director of Graduate Studies (DGSA) will have a meeting to go over all details, deadlines, and policies related to Doctoral examinations for that semester.

In the event a *change to your committee is needed*, you should first consult with your Research Advisor and obtain approval from both the advisor and the replacement committee member. You should then send an email to the DGSA requesting the change to your committee referencing which committee member will be replaced (provide both faculty names). The DGSA will then submit a Change of Committee Request form to the Graduate School for approval by the Associate Dean of the Graduate School.

2. To schedule a room for your seminar, contact the Claudia M. De La Cruz at Claudia.delacruz@duke.edu or 919-660-1503
3. It is the student's responsibility to find a common time for all committee members to participate in the dissertation defense and to e-mail the committee confirming your examination (date/time/location). The student should also ensure that proper notifications have been completed and forwarded to the Graduate School (advisor letter, departmental defense announcement) and that a format check has been scheduled. If you have a change in committee, you must notify the DGS office in writing no less than 30 days prior to your exam or before your dissertation can be approved by the Graduate School. Failure to do so could possibly void the examination.
4. You must Apply to Graduate in DukeHub early in the semester during which you plan to complete degree requirements USE YOUR DUKE EMAIL ADDRESS AS A POINT OF CONTACT WHEN APPLYING TO GRADUATE:

[Apply to Graduate deadlines](#)

The Director of Graduate Studies Office will submit the formal defense announcement of the Final Examination for either the PhD or the Master's degree to the Graduate School after the student's PI has confirmed, via email, the student's dissertation/thesis is ready to defend. Both the DGS formal announcement and the PI email attesting to readiness are required in order to receive the exam signature card (the signature card is provided to the student at the format check appointment).

Upon leaving Duke Chemistry Department you must complete a Chemistry Department check-out form, provided to you by the DGSA. This form is also found in the back of the Use of Research Facilities Handbook.

***NOTE: So that the committee members will have sufficient time to read the dissertation carefully, it must be submitted to the examining committee no later than two weeks before the scheduled final examination.**

APPENDIX III

A Statement Concerning PhD Dissertations in Chemistry

The PhD dissertation is as a mature and competent piece of writing, embodying the results of significant and original research. The style of a dissertation should be that of a recognized chemical journal such as the *Journal of the American Chemical Society* or other peer reviewed journal in the field of the dissertation research.

The goals to be realized by the writing of a dissertation are two-fold:

1. Education of the student in the area of organizing questions, ideas, and data relating to a particular problem in a fashion that will: (a) facilitate the candidate's critical appraisal of his/her experimental data and methods, (b) assist him/her in developing an understanding of the new ideas and understandings implicit in his/her work, (c) help him/her to identify the logical steps to be taken next to extend the grasp of the subject already won.
2. Collection in a permanent document, for the education of scholars who will follow, a detailed account of the research and study of the candidate that presents: (a) the background of his/her problem, (b) the student's experimental strategies and procedures and (c) his/her data (d) the conclusions drawn from the investigations and study, insights developed, and such speculative comments as seem desirable.

The Graduate School requirements concerning style must be followed. The PhD dissertation should stand on its own. To this point, it is essential to report all "unpublished" and published data included in the dissertation and to discuss experimental procedures and designs in sufficient detail that a clear account is left for others who will follow.

APPENDIX IV

Payment of Fees and Payroll Deduction

Graduate students serving as teaching assistants are supported with funds from the university and their fees (continuation, health, etc) and tuition are paid by the department directly to the university and are not included as part of the monthly “living” stipend check. Students supported on research assistantships are usually funded through federal research grants, which cover both the “living” stipend and funds to pay continuation and other fees. Some minor fees such as parking or other bills on your account should be paid through payroll deduction. More information and forms for setting up payroll deductions are available at the Bursar’s Office web-site at <http://finance.duke.edu/bursar/Payments/index.php>.

US citizens and permanent residents may be eligible to take advantage of certain education-related tax deductions or credits, like the Lifetime Learning Credit, which may significantly reduce or even eliminate any tax burden associated with stipends. More information about these tax issues can be found at the Bursar’s Office web-site at <http://finance.duke.edu/bursar/TaxInfo/index.php>.

Paychecks

If you are a Research Assistant you will receive a paycheck on the 25th of the month. Most Teaching Assistants receive a portion of their stipend on the 25th and the remainder on the last business day of the month. If you are on a fellowship provided by Chemistry or any other department at the University you will receive a paycheck on the last business day of the month.

Master's Program General Information

General:

Although the department does not consider applications from potential graduate students seeking a Master of Science as the terminal degree, M.Sc. degrees are typically granted in the department each year. Students enter the Master's program by one of two general routes. The first is by the action of the department, and as such is an indication that there are serious reservations on the part of the faculty concerning the likelihood that a student will successfully complete the requirements for the PhD. Such a decision may occur at the end of the student's first year in residence and as such would be based largely on performance in the first year course work. It is also possible that based on a student's performance at one of his/her oral examinations, usually the Preliminary Examination, a student's supervisory committee might conclude that placement in the Master's program is an appropriate action. Alternatively, a graduate student may voluntarily decide to withdraw from the PhD program and be placed in the Master's program. Reasons for such a decision are varied, but may include a change in career plans or any variety of personal reasons.

A departmental decision to place a student in the Master's program will usually include a recommendation that the student pursue either a terminal Master's degree, with no possibility for reinstatement to the PhD program, or in rare instances a non-terminal Master's degree, with a final decision concerning reinstatement being deferred until after the Master's thesis defense, and usually dependent on several conditions previously established by the student's supervisory committee, the DGS, and the grad school.

Program and Registration:

Specific Graduate School requirements for the Master's degree can be found in the Bulletin of Duke University, Graduate School, and should be read with care by all students entering that program. A key feature of the MS degree is that a minimum of 30 units of registration be obtained before completion of the degree. Of these, at least 24 must be taken for a grade. There are often questions concerning the most appropriate way for a Master's student to obtain the required 24 units of graded work. Most students should have completed 20 to 22 units of graded coursework during the first year as part of the PhD program, and the remainder of the required units can normally be made up through graded research credits in the second year. Any student contemplating a voluntary switch to the Master's program should anticipate these particular Master's registration requirements and carefully plan his/her various semester registrations. For this reason the department recommends that all students register for 6 units of graded research (CHM 801) in the Fall semester of his/her second year and 6 units of graded research (CHM 801) in the Spring semester of his/her second year.

Support:

Any departmental action, which places a student in the Master's program, is usually accompanied by a recommendation concerning future financial support. A student placed in the Master's program may or may not be offered future support (tuition, fees, stipend) to complete the necessary requirements for a MS degree. The Department's first priority is to support those student's pursuing PhD degrees. This is consistent with the department's central mission, the training of PhD level chemists, a policy reflected in initial departmental admissions decisions.

Propositional Exam Pre-submission Form

Student Name:	
Date:	
Project Title:	

Summary. Briefly summarize the proposed research describing what is and what is not known about the research area so that the gap in knowledge to be filled by the proposed research is clear.

Advisor's research confirmation. The research topic is sufficiently removed from the student's dissertation research. Yes No

Advisor's Signature

APPENDIX VII

Chemistry Department Accident Insurance Policy and Medical Coverage

As per Graduate School policy, injuries incurred during the course of TA responsibilities are covered by Worker's Compensation. Injuries incurred during the performance of any other student activities (research, studying, etc.) are covered by the student's insurance, including the required Health Fee as well as supplemental health insurance for injuries that cannot be fully treated through the Duke Student Health Center. All full-time students are required to enroll in this supplemental insurance policy unless they show evidence that they are covered by other generally comparable insurance. See the Graduate School Bulletin for further details on the Student Health Program and Health Insurance.

For more details go to: <http://www.studentaffairs.duke.edu/studenthealth>

APPENDIX VIII

Duke University Graduate School

Childbirth and Adoption Accommodation Policy for PhD Students at Duke University

Revision Date: February 27, 2018

Purpose

To allow the primary caregiver of a newborn child or a newly adopted child the possibility to devote full time care to an infant or an adopted child in the first weeks after birth or adoption. This policy guarantees PhD students *a minimum level of accommodation* during the transition to parenthood and reflects the Graduate School's ongoing commitment to supporting graduate students parents and a healthy academic work/family live balance.

It is clear that the variety of PhD student academic requirements and responsibilities in different degree programs will have an impact on how those programs structure any accommodation beyond the minimum level required by the Graduate School. Programs have the flexibility to devise accommodation arrangements that correspond to what is possible and necessary in a given degree program context, provided the minimum accommodation is afforded.

Policy

The designated primary caregiver will be relieved of full-time graduate studies and duties for up to nine weeks after the birth or adoption of a child. If need be, up to two of those weeks may be situated before the projected birth or adoption date. The non-primary care giving parent may be relieved of two weeks of full-time graduate studies and duties in order to provide additional support to the primary caregiver.

Eligibility

In order to be eligible for accommodation, the designated primary care giver or the parent who is not the primary caregiver must

- 1) have been matriculated into a PhD program at Duke University;
- 2) be in good academic standing.

Note: If both parents are Duke PhD students, they may discuss with their respective degree programs and the Graduate School a feasible proposal for dividing up the 11 week accommodation period in a different way if they so wish.

Accommodation Principles

1) **Enrollment Status:** PhD students benefiting from accommodation will remain registered as full-time students, and thus their eligibility for graduate student benefits remains intact (insurance, housing eligibility, student services, and the like). Eligible students who are also receiving stipend support would continue to receive that support.

2) **Suspension of Academic Requirements and Duties:** PhD students benefiting from accommodation are relieved of full-time academic and program responsibilities, such as the following: teaching assistant or research assistant duties, official academic examinations (qualifying examinations or preliminary examinations), research deadlines, coursework.

- a. Any scheduled coursework or examinations should be rescheduled as appropriate to avoid conflicts with the accommodation period and to provide reasonable time to complete these academic requirements.

- b. The department or degree program will develop a plan to replace necessary duties and responsibilities, such as teaching and research. The Graduate School expects that the department or program will demonstrate the maximum flexibility possible.
- 3) The Graduate School will work with the department or degree program to determine expenses associated with the accommodation period and an appropriate cost-sharing arrangement with the Graduate School.
- 4) **Accommodation is not a leave of absence**, and the expectation is that the PhD student benefiting from accommodation will remain engaged in her or his academic and research work even if at a reduced level (assuming the good health of the student and the infant or child).

Funding

Eligible students who are receiving stipend support would continue to receive that support during the accommodation period. If a student is funded through a training or research grant the external sponsor will be expected to continue to pay the stipend to the extent allowable by the granting agency.

The department or degree program will develop a plan to replace necessary duties and responsibilities, such as teaching and research. Any additional costs incurred by the department or program due to replacement of compensatory work will be funded through the Graduate School. However, accommodations for students in Arts & Sciences and Engineering departments that have a surplus in their carryover bank will be funded through the bank.

Procedure

Requesting Accommodation

PhD students seeking accommodation should inform their department or program (normally through their Director of Graduate Studies) and the Graduate School office **in writing** no later than one month prior to the semester during which birth or adoption is expected to take place so that departments and programs can have adequate time to plan any necessary replacement needs.

The written request must indicate the 'expected' birth or adoption date.

Students will be expected to obtain the signature of their Advisor and Director of Graduate Studies, prior to submitting this form to the Senior Associate Dean, Academic Affairs for final approval.

If funding source changes are required, the Senior Associate Dean for Academic Affairs will notify the Office of Budgets and Finance to adjust student funding source accordingly.

Related Links

NIH Parental Leave Policy for Ruth L. Kirschstein NRSA Awards

<http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-08-064.html>

Request for Childbirth and Adoption Accommodation

Students who wish to enact the provisions of the Childbirth and Adoption Accommodation Policy are asked to complete the following form. Upon approval from the Dean of the Graduate School, students will be entitled to maintenance of full-time student status, suspension of academic responsibilities, and continued stipend support.

Please submit this form at least one month prior to the beginning of the academic semester in which you will begin the leave period.

Completed forms should be submitted to the Senior Associate Dean, Academic Affairs, Graduate School, Box 90065, 2121 Campus Drive or faxed to 919-684-2277.

(Please estimate the start of your requested accommodation period and then adjust/confirm after the actual birth/adoption. Students are eligible to begin the accommodation period up to two weeks prior to birth or adoption date if they wish.)

Last Name: _____ First Name: _____ Middle: _____

Address: _____
(street apt. city, state, country postal code)

Phone: _____ Unique ID: _____ Department: _____

Admit Term: _____
I am requesting policy coverage beginning _____
(month/day/year)

Stipend funding source (To be completed by the Directory of Graduate Studies)

Advisor (indicating that the student has discussed revised completion schedule)

Signature: _____ Date: _____

Director of Graduate Studies (departmental approval indicating good academic standing)

Signature: _____ Date: _____

Senior Associate Dean, Academic Affairs, Graduate School

Signature: _____ Date _____

APPENDIX IX

Graduate Chemistry Council (GCC)

GCC provides numerous academic and social activities for the entire chemistry department, including graduate students, undergraduate students, post-docs and faculty, in order to facilitate interdepartmental interactions and collaborative scholarship. Some examples of GCC activities include lectures by invited academic and professional speakers, department picnics, town hall meetings, outdoor Summer activities, and recruitment and orientation of new graduate students.

The primary goal of GCC is to continuously improve the graduate school experience in the chemistry department at Duke, and so we invite you to bring any questions or concerns to 2022 - 2023 Officers:

President	Jarrett Mansergh
Vice-President	Jacob Williams
Treasurer	Niven Singh
Secretary	Carlos Monteagudo