

OLD PROGRAM REQUIREMENTS (PRIOR TO FALL 2020)

Description of the Ph.D. Program

I. Formal Coursework

Graduate students are required to accumulate 72 credits from a combination of classroom courses and research in order to fulfill the requirements for the Ph.D. In order to maintain full-time status in the graduate program, students are required to register for 12 credits each semester until they achieve these 72 credits.

Each student is required to complete 20 credits worth of classroom-oriented coursework and maintain good standing, which requires a cumulative GPA of 3.0 or greater and having no single class grade below a B-. In their second fall semester of residence, students also must enroll in the Graduate Seminar course (see below). In their third fall semester of residence, students must also enroll in the Original Research Proposal course (see below). A student may customize a course sequence suitable for an interdisciplinary curriculum with approvals from the Director of Graduate Studies (DGS) and a faculty member in one of the chosen areas of specialization.

II. Colloquium Attendance

Departmental colloquia are held each week during the academic year. Graduate students are expected to attend these colloquia on a regular basis throughout their graduate school career. Note that departmental colloquia are distinct from seminar courses. Students must attend a minimum of ten (10) colloquia prior to scheduling their Ph.D. qualifying examination by February 15th of their second year (see below). Students not fulfilling this requirement will not be permitted to take the qualifying exam, thereby risking having their candidacy withheld. Students must submit a colloquium/seminar attendance form for their attendance to be counted. In addition, students must attend a minimum of ten (10) additional colloquia prior to the Dissertation Evaluation Exam (see below). Students who have not attended the requisite number of colloquia will not be permitted to take the Dissertation Evaluation Exam and, therefore, risk having their dissertation defense delayed.

III. Semester 1 (Year 1 - Fall)

Orientation: During orientation week, which is held prior to the beginning of the Fall semester, students meet with an assigned faculty advisor for guidance on course selection and research rotation choices. Every effort is made to pair each student with a faculty advisor in the student's stated area of interest.

Coursework: During Semester 1 (Fall), students must register for, attempt, and pass 12 credits worth of academic courses (a W is not acceptable under these guidelines). Exceptions to this rule must be approved by the DGS. Students who do not pass the English proficiency test offered by the American Language Institute are required to enroll in the

English course. The English course can substitute for one of the academic courses taken in the Fall semester. Furthermore, first year students are required to take the zero-credit course “Professional Development in the Sciences” (CHEM-GA 2673).

Research Rotations. Students are required to perform two research rotations during the first Semester (Semester 1). Rotations are intended to introduce students to ongoing research projects within the Department. A rotation typically consists of a set of training exercises and/or a small independent project related to the research activities of the selected group(s). Rotation assignments are group dependent and will vary among the research groups. Individual research faculty will provide the student with their expectations for a given rotation cycle.

In preparation for choosing their rotations, students are required to meet with six faculty members during the first three weeks of the semester. All students are required to bring the completed [Research Interest and Rotation Form](#) to these meetings and will have the faculty member sign the form after the meeting has taken place. Students must submit this form to the DGS, indicating their three rotation choices ranked in order of preference, by Thursday, September 15th, 2022. The three choices must correspond to faculty members who have signed the form. Students will be notified about rotation assignments soon after this deadline. The rotation schedule is below:

- Rotation #1: Monday, September 19, 2022 to Friday, October 21, 2022
- Rotation #2: Monday, October 24, 2022 to Tuesday, November 29, 2022

Students are expected to spend at least 10 hours per week on their rotation projects. At the end of the second rotation, students must turn in the [Dissertation Adviser Selection Form](#) by Friday, December 2, 2022. Faculty supervisors will submit a performance evaluation to the DGS for each rotation student. These evaluations become part of the permanent student record. These choices will be reviewed by the Departmental Executive Committee, after which the Director of Graduate Studies will inform each student of the Committee’s recommendation, typically by the middle of December. The Committee will make every effort to approve the first or second choice of dissertation advisor, but these choices cannot be guaranteed. If a particular research group is full, or if it is deemed that a student is not suited to the research of a particular group, the Committee may not immediately approve a student’s first or second choice. Students who are assigned in December should initiate their research activities toward their dissertation projects on or about the first business day in January (January 2, 2023). In certain circumstances, the Departmental Executive Committee may defer their decision until later in January. In addition, the Committee may request that students carry out a third or potentially fourth rotation during the spring semester, in which case the student would need to submit another choice of faculty advisor to the DGS by Friday, May 12, 2023. Students are encouraged to communicate with the DGS during this time.

Semester 2 (Year 1 - Spring)

Coursework: Students are required to enroll and complete eight (8) credits worth of class work and enroll for a section of “Research” (CHEM-GA 2932). The Research section replaces a formal academic course, allowing the student to pursue research in greater depth. Research is a credit-bearing academic course and as such, students will receive a grade for Research from their dissertation advisors based on their research performance during the semester.

Year 1 Evaluations:

- After the end of the spring semester, the Graduate Program Administrator will review all grades of students in academic courses and Research. Students with an overall GPA < 3.0 or any single course with a grade of B- will be notified that this is below the coursework requirement in the PhD program. In these cases, students will be placed on academic probation and warned that failure to achieve the GPA and grade requirements will result in dismissal from the program
- Students complete an Individual Development Plan (IDP) and discuss the IDP with their PhD advisor in the summer of Year 1. This discussion serves as a way for students to start thinking about skills they need to build for their career and forms the basis for their advisor to complete a required annual assessment. See [this link](#) for details on IDP options and the detailed policy.

IV. Semester 3 (Year 2 - Fall)

Core Dissertation Committee: By the third Friday of September in Semester 3 (Fall), each student is required to submit to the Department Graduate Office the names of the members of his/her Dissertation Committee, using the [Departmental Dissertation Committee Form](#). At this stage, the Dissertation Committee must include four tenure-track/tenured faculty members (herein denoted the “Core”), including the student’s dissertation advisor and the chair of the committee. The chair of a student’s dissertation committee cannot be their faculty advisor or co-advisor. The Core Dissertation Committee is responsible for evaluating the student’s Ph.D. qualifying examination and monitoring the student’s progress throughout their years in the Ph.D. program. Three of the committee members must be full time members of the Department of Chemistry. One of the four Core Dissertation Committee members must be from outside of the student’s area of specialization. With the permission of the DGS and the student’s dissertation advisor, a student can select one expert who is not a member of the Department’s tenure-track/tenured faculty to serve as a member of the Core Dissertation Committee. Before choosing outside members, however, students should bear in mind that serving on a Dissertation Committee is a substantial commitment, and the student should ensure that all their selected Committee members will be able to attend the required examinations, seminars, and periodic meetings. Students are encouraged to discuss Dissertation Committee choices with their dissertation advisor prior to selection.

Coursework: During Semester 3, students should complete any remaining required classroom-oriented coursework. Non-native English speakers for whom accent correction

was recommended by ALI might, in consultation with their dissertation advisor, want to attend the Accent Correction course offered by ALI as well. In addition, students must register for Graduate Seminar, a course designed to give students the opportunity to present a 45-minute seminar in front of the department and to attend seminars presented by their peers (CHEM-GA 3010). Graduate Seminar should not be confused with the weekly Departmental Colloquia. Students also must register for a number of Research credits sufficient to maintain full-time status. As in Year 1, Research is regarded as an academic course, and students receive a grade for Research from their dissertation advisor.

Semester 4 (Year 2 - Spring)

Coursework: During Semester 4, students should complete any remaining required academic courses and register for a number of Research credits sufficient to maintain full-time status. As in Year 1, Research is regarded as an academic course, and students receive a grade for Research from their dissertation advisor.

Ph.D. Qualifying Examination: Students are required to schedule and take their Ph.D. qualifying examination during Semester 4. The student is required to arrange the date and time for the examination with the members of his/her Dissertation Committee by February 15 and to inform the Graduate Program Administrator of the date and time. The exam should be held between April 15 and June 15. The Ph.D. qualifying examination consists of both written and oral components, as described below.

- **Written Report:** The written report is submitted to the Exam Committee at least two weeks before the scheduled exam date. The report should consist of: (a) a 250-word abstract understandable to a technically-trained individual outside of the student's field; (b) a 1-page discussion of the background, motivation, and significance of their research project; (c) a 5-page description of specific research accomplishments; (d) a two-page description of future research plans; and (e) an appendix containing experimental or computational details (all sections single spaced, 12-point font). This report should be submitted in a format that stringently corresponds to that of a high-impact journal in the student's area of specialization, which may include, but is not limited to, the Journal of the American Chemical Society, Physical Review, or Proceedings of the National Academy of Sciences. Formatting includes font sizes, margins, figures, among others. If available for a given journal, the use of a template is encouraged. In contrast to most journal requirements, 'single space' must be used for the written report.
- **Oral Presentation*:** The oral portion of the exam consists of a 30-minute presentation by the student to the Core Dissertation Committee, followed by a question-and-answer session of up to two hours in length. The oral presentation should include the background, motivation and significance of the research project, specific methods and techniques used, results obtained to date, and future research plans. The Committee will then question the student about the research, concepts related to courses completed by the student, and general fundamental concepts that

every chemistry student at this stage is expected to have mastered. Students must bring the Qualifier Examination Form to their examination. *Students are prohibited from providing refreshments (snacks, drinks, etc.) to their committee during their examination.

Evaluation Criteria:

Both the written and oral portions of the exam are evaluated based on the following criteria:

- Research progress
- Organization
- Depth of technical knowledge about the research project
- Breadth of knowledge in the general research field
- Understanding of the methodology/techniques employed
- Understanding of specific results obtained in the course of the research project
- Ability to communicate effectively
- Ability to understand and answer questions accurately

Examinations are awarded one of the following grades:

- Pass with Distinction
- Pass
- Conditional Pass
- Conditional Fail
- Fail

In order to be granted Ph.D. candidacy status, students must earn at least a “Pass,” which will be awarded only if all of the above criteria are met at a satisfactory level. “Pass with Distinction” is reserved for students who perform exceptionally well in all of the above categories. Failure to satisfy some of the above criteria will result in a “Conditional Pass”, which requires that some part(s) of the exam, to be determined by the Core Dissertation Committee, be repeated prior to August 20th of that year. In certain marginal cases, a student might be given a grade of “Pass” but be asked to submit certain materials, within four weeks, to the Core Dissertation Committee for reevaluation and final approval of a passing grade, without requiring another examination. Failure to satisfy a majority or all of the above criteria will result either in a “Conditional Fail” or “Fail.” A grade of “Conditional Fail” requires that the exam be repeated in its entirety between July 1 and August 20 of that year. A final grade of “Fail” will result in the student’s dismissal from the program by the end of the summer semester (August 31st) of that year.

V. Semester 5, 6, 7, 8 (Years 3 and 4 – Fall & Spring)

Research/Coursework: During Years 3 and 4, each student should focus on dissertation research. The tuition scholarship is reduced by the number of advanced credits accepted by

the department. Any student wishing to take additional courses must obtain the approval of their dissertation advisor before enrolling in or choosing to audit additional courses.

Year 4 Evaluation:

- Students complete an Individual Development Plan (IDP), as in Year 1, and discuss the IDP with their PhD advisor in the summer of Year 4. This discussion serves as a way for students consider additional skills they need to build for their career and forms the basis for their advisor to complete a required annual assessment. See [this link](#) for details on IDP options and the detailed policy.

VI. Semester 9+ (Year 5 and Beyond)

Dissertation Evaluation Exam: Prior to taking the Dissertation Evaluation Exam, students must choose an additional reader to serve on their final Dissertation Committee. With the permission of the DGS and the student's dissertation advisor, a student can select one expert who is not a member of the Department's tenure-track/tenured faculty to serve as a member of the Core Dissertation Committee. The student is responsible for informing the Department Graduate Office of the choice using the [Dissertation Reader Sheet](#). The Dissertation Evaluation Exam is held with all five members of the Dissertation Committee. Prior to scheduling this exam, all experimental research should be complete. This exam consists of a research evaluation (Part 1) and an original proposal (Part 2). The entire exam must be completed within 3-6 months prior to the anticipated date of the dissertation defense. Students may not schedule their dissertation defense until they have successfully completed both parts of this requirement.

Dissertation Defense Exam, Part 1: An evaluation of the student's research to date designed to ensure that the student is ready to defend and earn a Ph.D.

- **Written component:** To allow the Dissertation Committee to evaluate a student's progress completely as well as the thesis, the following written components must be provided to the committee two weeks prior to the scheduled exam:
 - The complete introductory chapter(s) of the student's thesis
 - Detailed outlines of every thesis chapter

Failure to provide all or part of the written component will result in canceling of the exam.

- **Oral component*:** The student must give a 30-minute presentation on their research to their Dissertation Committee, to be followed by questions from the Committee members on the research. If the Committee identifies problems with the student's research, deems that additional work is needed, feels that some aspect of the work presented should be completely or partially repeated, or detects serious weaknesses in knowledge of chemical principles, this will be communicated to the student at this time. **Students are prohibited from providing refreshments (snacks, drinks, etc) to their committee during their examination.*

Dissertation Defense Exam, Part 2: An original proposal that provides an opportunity for the student to demonstrate proficiency in the design, planning and communication of an original research problem. Students are asked to propose a series of experiments to a specific problem or system or the application of an existing technique to a specific problem or application. The proposal must be original, meaning that there should be no overlap with the student's dissertation topic and the proposed technique and/or application should not have appeared in the scientific literature. The original proposal consists of written and oral components:

- **Written component:** The written part of the exam, which must be submitted to the Dissertation Committee members at least two weeks prior to the scheduled exam date, consists of a seven-page, single-spaced document following NSF Guidelines:
 - **From the NSF Grant Proposal Guide:** “The proposal must be clear, readily legible, and conform to the following requirements: a. Use one of the following typefaces – Arial, Courier New, or Palatino Linotype at a font size of 10 points or larger; Times New Roman at a font size of 11 points or larger; Computer Modern Family of fonts at a font size of 11 points or large; no more than 6 lines of text within a vertical space of 1 inch; margins, in all directions, must be at least an inch.”
 - The student has to submit only the basic proposal following the NSF guidelines. All other forms and requirements described in the NSF grant proposal guidelines (such as biosketches, budget pages, equipment, etc.) should be neglected.

- **In the written proposal, students should**
 1. Identify a research topic in chemistry not related to their dissertation research.
 2. Explain its importance and broader context.
 3. Describe a project that falls within the scope of the topic.
 4. Describe how the project would be performed and how its feasibility would be demonstrated.
 5. Describe the overall aims of the project and the results anticipated upon its completion. Experimental proposals should include details of the experiments needed for project completion whereas theoretical proposals should describe specific calculations as well as methodological and theoretical developments.

Oral component: The oral component consists of a 30-minute presentation summarizing the written proposal, followed by questions from the Committee. This question and answer session will be based primarily on the written proposal and short presentation, but it may expand into the broader context of the proposed project. Students must bring the Dissertation Evaluation Examination Form with them to this component.

Students who fail either the written or the oral portions of the Dissertation Evaluation Exam will be asked to repeat all or some portion of this part of the exam with specific instructions on what needs to be improved or modified. Students who fail all parts of the exam are responsible for scheduling their make-up exam at a time that is convenient for the members of their Dissertation Committee. Students who pass this exam can schedule their Dissertation Defense. Students who fail the exam for a second time will be dismissed from the program.

Dissertation: The submission and defense of your dissertation is the final chapter of your graduate career. The dissertation defense consists of two parts:

1. A written Ph.D. dissertation
2. An oral defense of the dissertation work

Submitting the Dissertation Draft: At least six weeks prior to the anticipated dissertation defense date, students must submit a complete draft of their dissertation to their Dissertation Committee members for comments and recommendations of changes. At this time, the Committee will recommend changes to the dissertation. The student must incorporate these changes and obtain the signatures of their Committee members on the 'Departmental Dissertation Approval Form' no less than two weeks prior to the date of the defense. The defense cannot proceed without the form having been signed and filed with the Department.

The Dissertation Defense*: The final step in receiving the Ph.D. is the dissertation defense. The dissertation defense consists of an oral presentation by the student, approximately 45-50 minutes in length, which is open to the public. During this time questions from the public audience and the committee are encouraged. The presentation is followed by a question-and-answer section, which is open to the public. Afterwards, the general audience and the student are excused, and the Dissertation Committee discusses the student's performance in a closed-door session. If any concerns remain, the student might be called back for a closed-door question-and-answer session with the Dissertation Committee. **Students are prohibited from providing refreshments (snacks, drinks, etc) to their committee during their examination.*

Dissertation Submission Guidelines: *Note: Completion of these steps, does not guarantee conferral of a candidate's degree. The final conferral decision rests with the Graduate School of Arts and Science and New York University's Office of the Registrar. After completing the final dissertation submission, candidates should contact the Office of the Registrar at graduation@nyu.edu if there's any questions regarding graduation status or degree conferral.*

VII. Miscellaneous

Submission of Forms: Students are responsible for the submission of all required forms at the above outlined deadlines to the graduate office of the chemistry department. A link of to all forms is above:

- [Graduate Student Forms](#)

Cheating and Scientific Fraud: It is expected that all students will maintain the highest standards of scientific integrity. Cheating and fraud, including any form of plagiarism, copying, collusion on exams, or data falsification, will not be tolerated at any point in your graduate career. Students found guilty of any of the aforementioned infractions can expect to be placed on departmental probation at the very least and/or dismissed from the program.

Obeying the Rules and Departmental Citizenship: The department, as a whole, functions only as well as its individual members. Students are expected to behave as good departmental citizens. This means showing up on time for all meetings, attending as many Friday colloquia as possible (even those outside your field of study – you might just learn something!), being on time for all exams, and obeying the instructions of faculty and staff.

Petitions: In selected cases of hardship (medical etc.), a student can petition the graduate committee to delay an exam or waive a deadline. These petitions have to be approved PRIOR the deadline of the exam/deadline in question. Petitions should be submitted in writing to the graduate office of the department. Petitions will be reviewed twice annually by the graduate committee and have to be submitted by March 15th for the spring graduate committee meeting and September 15th for the fall meeting.