



# **CHEMISTRY DEPARTMENT**

## **Ph.D. Guidelines & Requirements**



the proposal. Students who satisfy these guidelines will reduce the number of cumulative exams they must pass to six.

**Research**

The Ph.D. degree requires a thesis based upon original research, either experimental or theoretical. Research projects typically require at least three to four years of sustained effort and will begin during the first year of study. An oral defense of the dissertation, before a faculty thesis committee, and a public presentation of the dissertation complete the degree requirements.

**Teaching**

Some teaching or equivalent educational experience is required. This requirement may be satisfied by a minimum of one year of service as a teaching assistant or by suitable teaching yeys pubuitarC0.004 b(a)6(s)1(t 2(e)6( )4(i)-6(n10(i)2(. d41 ta)12(r33le)6( 7t(it6( )4(( )4(( )4((

## **Ph.D. Program - YEAR 1**

### **Financial Support for Students**

Most first-year students will begin their Ph.D. program as full-time teaching assistants (TAs) and will be involved in all aspects of teaching, grading and administering undergraduate laboratories and/or recitation sections for introductory lecture courses. Some students may be supported by fellowships. TA stipends provide support for the ten-month period from September 1 through June 30. Summer support usually comes from the faculty in the form of a research assistant stipend. A few full time summer TA positions are available. However, full time summer TA positions require daily laboratory teaching and are not an effective mechanism for support of students wishing to make progress in the research component of their degree program.

### **Core Curriculum**

Director of the Graduate Program Director (GPD).

Graduate level courses taken in other departments (physics, biology, etc.) or at other institutions can be counted as advanced electives only with approval of the GPD, in consultation with the student's research advisor. By the end of the first year, a student should have demonstrated proficiency in the core curriculum.

### **Cumulative Exams**

Students must start taking these exams in the beginning of the second year of the program; however, they are encouraged to begin to take these exams in the first year. (See Year 2, Cumulative Exams).

### **Joining a Research Group**

During the fall semester, all first year students, including those who have already undertaken some preliminary research during the summer, will begin the research advisor selection process. An exploration period follows orientation week, during which students are required to meet with all research faculty either in small groups or one-on-one. Many labs will offer an "open house" event where new students are invited to attend a group meeting. No one is permitted to join a research group during this initial exploration period. After the exploration period, the student will submit their top three choices for the selection of faculty advisors to the Associate Director of Administration and Graduate Student Services. A matching of students with advisors will then take place. An effort will be made to accommodate the students' choices, but sometimes that is not possible. In such cases the department will work with the student to explore options and to find a solution that works for all concerned.

While there is no mandated deadline by which time graduate students in Chemistry must have joined a research group, it is nevertheless important that doctoral students reach a mutual agreement with a research advisor about joining a group by the end of their second semester in the program. The reason for this is two-fold. First, as outlined in the program description, in order to qualify for available financial support beyond the first year, a doctoral student must be an active member of a research team. Second, because the primary component of graduate study in Chemistry is the research project, in almost all circumstances academic progress towards a degree cannot be made without participation in such a group.

### **Research**

The research project is the primary component of graduate study in chemistry. While a first year student may take courses during the second semester of the first year of study, it is also a time to begin preliminary experiments in the laboratory. A research project usually begins with a significant amount of library research, and this work should be pursued during the first and second semesters, even for students with full-time teaching

## **Ph.D. Program - YEAR 2**

As the second academic year begins, it is important for the graduate student to maintain acceptable progress in the research/experimental component of the graduate program. This work is by far the most time intensive, but it is also the most important factor in determining the timetable for completion of the Ph.D. degree. With the beginning of the second year, course work and/or commitments to undergraduate teaching will compete with a student's time to work in the laboratory. *Time management* at this point in the program is *essential* for successful progress toward the Ph.D. degree.

### **Financial Support for Students**

Most second year students are half-time and, in some cases, full-time TAs. Teaching is an important activity of the department, but students working as teaching assistants must budget their time effectively so that they can still maintain adequate progress in their experimental work.

Research Assistantships (RAs) are stipends offered to successful graduate students and allows them to work in the lab full-time to focus on their research projects. Funds for RAs come from externally awarded grants to individual faculty members. These funds, which come from the federal government or other, sometimes private, sources, are difficult to obtain and are typically awarded for a short period of time (*ca.* three years). The renewal of three to five year grant awards is largely dependent on the success of the work accomplished during the initial award period. Therefore, a research advisor usually offers such positions to those students likely to have a strong commitment to their work and who can contribute to the successful awarding of additional funds.

Because of the competitive nature of external funding, students who receive an RA should not assume that they will automatically receive such support for the entire time of re time ofhl e oh2

**Courses**

Students who have not completed their course requirements by the end of their first year should take the remaining courses in the third or fourth semester, depending on course scheduling.

**Cumulative Exams**

Each Ph.D. candidate must pass six or eight cumulative exams in his/her area from 20 possible. A grade of "half pass" can be awarded by the examiner for exam performances that are considered close to passing. Two half pass grades will count as the equivalent of one full passing grade, but no more than four half passes can be counted toward satisfaction of the cumulative exam requirement.

Students must accumulate at least four passes in their primary field of research. The advisor and the student can decide that any particular cume in another discipline is relevant for the students' education. A maximum of four such cumes may be passed without department approval.

These exams are offered monthly, usually the last Wednesday evening of the month during the academic year, and cover topics announced in advance. It is advisable for first year students to take these exams. During the first year any passing grades will count towards the eight needed; any failures will not be counted in the student's record. Students are expected to pass a minimum of three cumulative exams by the end of their second year in the program in order to maintain satisfactory performance toward fulfillment of the cumulative exam requirement.

## **Ph.D. Program - YEAR 3 and BEYOND**

### **Financial Support for Students**

It is typical that as a student becomes more adept and more successful in the laboratory, he/she will be supported as a full-time RA. By the third year, the student's financial support is normally the responsibility of the faculty advisor.

Ph.D. candidates who have completed their dissertation defense, but have not submitted a signed final copy of it to the Department and the Graduate School of Arts & Sciences must register for Doctoral Continuation (1 credit- CH99901) for each academic term prior to graduating. **If the student does not complete their dissertation during the semester following the defense, payment of this credit may be the student's**

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## **DISSERTATION DEFENSE**

The preparation and defense of a thesis is the last step in obtaining a Ph.D. degree. The defense consists of two parts: a public defense (a formal seminar open to the entire community) and a private defense open to members of the thesis committee.

In the private defense, the student typically gives a short summation of his/her work and is then required to answer questions about the work and defend the conclusions reached.

The public defense can be scheduled during the last semester of work, before the private defense. Alternatively, it can be scheduled to occur shortly after the private defense has been completed and the thesis submitted.

With the completion of both defenses, and the submission of the approved thesis to the graduate school, the Ph.D. degree will be granted at the next graduation date provided.

## MASTERS OF SCIENCE DEGREE

In those cases where a student is completing an M.S. degree, a minimum of 18 graduate credits must be completed to fulfill university requirements. Providing that a student has taken the recommended core curriculum in the first year, a minimum of twelve credits should have been amassed by the end of the first year. By the end of the second year, at the time of the oral exam, a student should have completed the core curriculum and taken at least one advance course. The last remaining credits can be obtained during the summer and fall semester of the third year. Often the M.S. lab work can be finished during the summer or during the first portion of the fall semester of the third year, and the thesis can be written and defended by the end of the fall semester. Students who have not amassed the necessary credits after two years of study, and who are working toward a master's degree, may have difficulty in obtaining the necessary credits during the fall semester and may not complete their degree requirements until the spring semester of the third year. Master's degree candidates are not guaranteed financial support, either TA, RA or tuition remission. Students completing the master's degree should discuss their funding status with their faculty advisor.

The M.S. degree requires a thesis and a private oral defense.

### **Thesis Guidelines**

If you are in a Master's degree program that requires a thesis, you must deposit your completed thesis with the University by the date indicated on the [University Academic Calendar](#) in order to qualify for graduation.

Your graduation date listed in Agora must match the semester you plan to graduate. If not, contact the Dean's Office at 617-552-3268 or [gsasinfo@bc.edu](mailto:gsasinfo@bc.edu) to have this corrected.

Follow the [Thesis Checklist](#) to ensure you have completed all requirements.

## ACADEMIC INTEGRITY

The chemistry department upholds the Boston College policy on academic integrity (*see* <http://www.bc.edu/content/bc/schools/gsas/policies.html#integrity>). The following are examples of violations of academic integrity:

## **HARASSMENT**

Students should familiarize themselves with the University Policy on Discriminatory Harassment, both with regard to their roles as student and as teacher. For further information, go

## **ACADEMIC GRIEVANCES**

A student who believes he/she has been treated unfairly in academic matters should review the Graduate School of Arts & Sciences Grievance Procedures, <http://www.bc.edu/schools/gsas/policies.html>, prior to consulting with the Associate Dean.

## **INCOMPETE POLICY**

All required work in any course must be completed by the date set for the course examination. A student who has not completed the research or written work for a course taken in the fall or spring semester or is absent from the course examination in either semester, may, with adequate reason and at the discretion of the instructor, receive a temporary grade of Incomplete (I). All such I grades will automatically be changed to F on March 1 for the fall, August 1 for the spring, and October 1 for the summer.