Department of Chemistry and Chemical Biology

2014 - 2015

Regulations for
Graduate Programs in Chemistry:
Non-Thesis M.S., Thesis M.S. and Ph.D.

Contacts for the 2014-2015 Academic Year:
Graduate Coordinator – Prof. Carla Mattos – c.mattos@neu.edu
Graduate Administrator – Cara Shockley – c.shockley@neu.edu
CONTENTS

I. INTRODUCTION AND SUMMARY OF PROGRAMS
   A. General Description of Graduate Programs
   B. Special Student Status and Transfer Credits
   C. Program Requirements and Typical Timetable
   D. Summary of Checkpoints in Thesis Programs
   E. Academic Advisors
      Academic Advisors for Part time M.S. Students
      Academic Advisors for First Year Students
   F. Full-Time Student Status
   G. Summary of First Year Requirements in Ph.D. Program
   H. Specimen Programs for First-Year Students in Thesis Programs
      1. Analytical Chemistry
      2. Organic Chemistry
      3. Physical/Materials/Inorganic Chemistry
      4. Chemical Biology

II. REGULATIONS, REQUIREMENTS, AND GUIDELINES
   A. Coursework Grades
      1. Overall GPA
      2. GPA Requirement for Continuation Beyond Second Semester
      3. GPA for Continuation in Non-thesis M.S. Program
   B. Credit Hour Requirements of the Graduate Programs
      1. Thesis M.S. Program
      2. Non-thesis M.S. Program
      3. Ph.D. Program
   C. Course Distribution Requirement
   D. Courses Beyond Minimum Requirements
   E. Seminar
   F. CHEM 5600: Research Skills and Ethics
   G. Research
      1. Selection of Ph.D. or M.S. Research Advisor
      2. Summer Financial Support for Students
3. Appointment of Three-Person Thesis Committee

H. Students Requiring Remediation or Training in the English Language Center
   1. Remediation
   2. Students Requiring Training in English Language Center

I. Students Entering With a Master's Degree

J. Research Courses
   1. CHEM 5984, M.S. Research
   2. CHEM 7996, Thesis Continuation
   3. CHEM 9990, Dissertation
   4. CHEM 9996, Dissertation Continuation

K. Cumulative (Qualifying) Examinations
   1. General Regulations
   2. Eligibility Requirements

L. Time Limits for Degrees and University Financial Support
   1. General College of Science Regulations
   2. Source of Support
   3. Terminal M.S. Program
   4. Ph.D. Students Who Fail the Cumulative Exams
   5. Ph.D. Program

M. Departmental Policies on TA Awards
   1. Students Admitted With TA Support
   2. Students Admitted Without TA Support

N. Admission to the Ph.D. Program After Completion of an M.S.

O. Residence Requirement

P. Thesis and Oral Examination Committees
   1. Three Person Thesis Committee and Annual Review
   2. Oral Examination Committee

Q. Format and Submission of Thesis

R. Clearance for Graduation

Appendix – Research Advisor Selection Policies and Form
I. INTRODUCTION AND SUMMARY OF PROGRAMS

I.A. General Description of the Thesis and Non-Thesis Graduate Programs

The Department of Chemistry and Chemical Biology (CCB) offers three advanced degrees: the non-thesis, coursework-based M.S. (part-time students), the thesis M.S. (full-time students), and the Ph.D. (full-time students). The Ph.D. degree requires a thesis based on substantially more research than required for the M.S., and may be pursued with or without a master's degree as an intermediate stage. In order to enter the thesis MS program a student must make prior arrangement with and get commitment in writing from a research advisor before applying.

The main features and requirements of the degree programs are summarized on the following pages. Since these programs take several years to complete, various checkpoints have been set up along the way to ensure that a student makes satisfactory progress. A brief summary of these checkpoints and the times in a student's career at which they occur follows the degree summaries. The purpose of the remainder of this booklet is to describe in detail the regulations and procedures that govern these degree programs; most of these rules apply to the thesis-based programs.

Students in the non-thesis M.S. program are not eligible for financial support through the Department. This program is generally designed for students who have regular full-time employment. The main requirement for the part-time non-thesis M.S. program is completion of 30 semester hours of credits in graduate courses numbered from CHEM 5600 through CHEM 8000; this and other rules are listed in the program summary that follows. An overall GPA of 3.00 is required for graduation.

Students enrolled in the thesis M.S. program are not eligible for TA awards, although they may receive RAs if their thesis advisor is able and willing to support them. Students in the Ph.D. program who are making satisfactory progress toward their degree (GPA and research) are eligible for financial support in the form of Teaching Assistantships (TAs) or Research Assistantships (RAs) through the Department. TAs, RAs and Tuition Fellowship Recipients in the Chemistry and Chemical Biology Department must be full-time students in residence. The M.S. or Ph.D. thesis programs may only be pursued on a full-time basis. The M.S. thesis program consists of a minimum of 32 semester hours of graduate credit in courses (21 SH), seminar (1SH), research (10 SH), and a thesis based on this research. In the Ph.D. thesis program, a
minimum of 33 semester hours is required (28 SH in courses). The main difference between M.S. and Ph.D. programs is that the Ph.D. degree requires much more extensive and thorough research and a correspondingly more complex thesis, as well as the successful passing of the cumulative examinations to qualify for Ph.D. candidacy and a dissertation examination upon completion of the thesis.

The first two semesters of the thesis graduate programs are essentially the same for students in either the Ph.D. program or thesis M.S. program. In the first two semesters, students concentrate on fulfilling course requirements and choosing a research advisor, although they may begin research as well. Beginning with the first summer, the programs followed by students in the M.S. and Ph.D. tracks differ considerably. The M.S. student must concentrate on finishing up the required coursework, carrying out research and writing the M.S. thesis. The main concern of Ph.D. students during their first summer is passing the cumulative examinations. In the fall of their second year Ph.D. students must finish course requirements, present a seminar and begin their thesis research.

B. Special Student Status and Transfer Credits

Special student status allows students to take up to 12 semester hours of credit at Northeastern University in graduate courses offered in the CCB Department. Students who are admitted as special status students are not enrolled in a degree program and may not "transfer" to any of our other graduate programs. Students who wish to further their education by earning an M.S. or Ph.D. must apply to and be accepted into one of these graduate programs. Students who are successfully admitted may apply for transfer credit (up to 12 semester hours) for coursework taken as a special student.

Students in the degree programs who have completed graduate chemistry courses in other U.S. accredited institutions may apply to the College of Science Graduate Student Services Department for transfer credit for up to 9 semester hours of transfer credit which can count toward the required semester hours of chemistry graduate coursework. However, the student must have earned a grade of B or better in each course and the student may not have used the credit for these courses at any
other institution toward any other degree. Please contact Cara Shockley (c.shockley@neu.edu) regarding the current transfer credit procedures.
C. Program Requirements and Typical Timetable

The program requirements for the M.S. and Ph.D. degrees are outlined on the following pages. There is also a timetable describing the first two years for students entering with a B.S. degree.
<table>
<thead>
<tr>
<th>Requirements</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1 Total Credit Hours</td>
<td>33 Semester (Credit) hours</td>
</tr>
<tr>
<td>2 Length of Program</td>
<td>Approximately 5 years</td>
</tr>
<tr>
<td>3 Course Requirements</td>
<td>18 credits of lecture-based graduate courses numbered between CHEM 5550 and CHEM 7799 are required. (Typical courses are 3 SH.) Up to 6 SH of graduate credits from outside Department may be substituted with prior approval of the Graduate Coordinator. Other required courses: CHEM 5599 (0 SH) Fall and Spring: Prerequisite to CHEM 5600 CHEM 5600 (3 SH) Research Skills and Ethics CHEM 7730 (4 SH) Advanced Laboratory Methods CHEM 7750 (3 SH) Advanced Problem Solving 4 SH of CHEM 8984 Research must be completed Registration in CHEM 8504 Graduate Seminar in each semester. Presentation of one seminar is required, with a letter grade assigned in that semester (1 SH). At least one additional presentation is required before graduation. Registration in CHEM 7996 Thesis Continuation (0 SH) as necessary until course work is completed and cumulative exam series is passed to establish Ph.D. candidacy. After obtaining Ph.D. candidacy, students register for CHEM 9990 Dissertation for two semesters (typically spring and summer semesters of second year). Then students register for CHEM 9996 Dissertation Continuation every term until thesis is defended, approved and submitted.</td>
</tr>
<tr>
<td>4 Graduation Requirements</td>
<td>3.00 or better overall GPA; Ph.D. thesis that is successfully defended before the full doctoral dissertation committee, approved, and submitted</td>
</tr>
<tr>
<td>5 Measures of Satisfactory Progress</td>
<td>Selection of research advisor by the end of the first year; attainment of 3.00 or better GPA after 2 semesters of residence, and continuing 3.00 thereafter; passing 3 cumulative exams out of a series of 5; attainment of Ph.D. candidacy by passing cumulative exams and completing required courses; positive annual review of research progress by thesis committee.</td>
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</table>
Northeastern University  
Department of Chemistry and Chemical Biology  

Summary of Chemistry Ph.D. Program for Students Entering with Approved M.S. Degree

<table>
<thead>
<tr>
<th>Requirements</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1 Total Credit Hours</td>
<td>7 Semester hours</td>
</tr>
<tr>
<td>2 Length of Program</td>
<td>Approximately 4 years</td>
</tr>
<tr>
<td>3 Course Requirements</td>
<td></td>
</tr>
<tr>
<td>CHEM 7750 (3 SH) Advanced Problem Solving</td>
<td></td>
</tr>
<tr>
<td>CHEM 5600 (3 SH) Research Skills and Ethics is required unless an equivalent course has been completed during MS study. If equivalent has been taken, another 3 SH elective graduate course is required CHEM 5599 (0 SH) Fall and Spring: Prerequisite to CHEM 5600.</td>
<td></td>
</tr>
<tr>
<td>Registration in CHEM 8504 Graduate Seminar in each semester. Presentation of one seminar is required, with a letter grade assigned in that semester (1 SH). At least one additional presentation is required before graduation.</td>
<td></td>
</tr>
<tr>
<td>Registration in CHEM 7996 Thesis Continuation (0 SH) as necessary until course work is completed and cumulative exam series is passed to establish Ph.D. candidacy.</td>
<td></td>
</tr>
<tr>
<td>After obtaining Ph.D. candidacy, students register for CHEM 9990 Dissertation for two semesters (typically spring and summer semesters of second year). Then students register for CHEM 9990 Dissertation Continuation every term until thesis is defended, approved and submitted.</td>
<td></td>
</tr>
<tr>
<td>(Students who are in the Ph.D. program and who complete the requirements for either the thesis or coursework M.S. do not have to take any additional requirements beyond the ordinary Ph.D. requirements. The 7 SH requirements described here apply to those entering with a previously attained M.S. degree.)</td>
<td></td>
</tr>
<tr>
<td>4 Graduation Requirements</td>
<td>3.00 or better GPA; Ph.D. thesis that is successfully defended before the full doctoral dissertation committee, approved, and submitted.</td>
</tr>
<tr>
<td>5 Measures of Satisfactory Progress</td>
<td>Selection of research advisor by the end of the first year; 3.00 or better GPA; passing 3 cumulative exams out of a series of 5 exams; attainment of Ph.D. candidacy by passing cumulative exams and completing required coursework; positive annual review of research progress by 3-person thesis committee.</td>
</tr>
</tbody>
</table>
Northeastern University  
Department of Chemistry and Chemical Biology  

Summary of Chemistry M.S. Thesis Program

<table>
<thead>
<tr>
<th>Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Total Credit Hours</td>
<td>32 Semester Hours</td>
</tr>
<tr>
<td>2 Length of Program</td>
<td>Approximately 2 years</td>
</tr>
<tr>
<td>3 Course Requirements</td>
<td>18 SH of lecture-based credits in graduate courses numbered between CHEM 5550 and CHEM 7999. (Typical courses are 3 SH.) Up to 6 SH of graduate credits from outside Department may be substituted with prior approval of the Graduate Coordinator. Required Courses: CHEM 5600 (3 SH) Research Skills and Ethics CHEM 5599 (0 SH) Fall and Spring: Prerequisite to CHEM 5600. 10 SH of CHEM 5984 Research must be completed, or the combination of 7730 Advanced Laboratory Methods (4 SH) and 6 SH of CHEM 5984. Registration in CHEM 5904 Graduate Seminar in each semester. Presentation of one seminar is required, with a letter grade assigned in that semester (1 SH).</td>
</tr>
<tr>
<td>4 Graduation Requirements</td>
<td>3.000 or better GPA; M.S. thesis approved and signed by thesis committee and submitted.</td>
</tr>
<tr>
<td>5 Measures of Satisfactory Progress</td>
<td>Selection of research advisor; attainment of 3.00 or better GPA after 2 semesters of residence, and 3.00 by completion of course credits; positive annual review of research progress by 3-person thesis committee.</td>
</tr>
</tbody>
</table>
### Summary of Chemistry M.S. Non-Thesis Program (part-time)

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Total Credit Hours</strong></td>
<td>30 Semester Hours</td>
</tr>
<tr>
<td><strong>2 Length of Program</strong></td>
<td>Variable – 7 year limitation</td>
</tr>
<tr>
<td><strong>3 Course Requirements</strong></td>
<td>30 SH of credits in graduate courses numbered between CHEM 5550 and CHEM 7999. (A typical chemistry course is 3 SH.) Up to 6 credits of graduate courses from outside the Department of Chemistry and Chemical Biology may be substituted with prior approval of the Graduate Coordinator. At least 12 credits from outside a main area of specialization (analytical, organic, physical, biochemical) must be taken, distributed over at least two additional areas.</td>
</tr>
<tr>
<td><strong>4 Graduation requirements</strong></td>
<td>3.00 or better GPA</td>
</tr>
<tr>
<td><strong>5 Measures of Satisfactory Progress</strong></td>
<td>Maintenance of satisfactory GPA. Continuous registration, with successful completion of at least 1 course per semester</td>
</tr>
</tbody>
</table>
Typical Timetable for CHEM Graduate Curriculum for Thesis Ph.D. and M.S. Programs

*core courses advised for specialty or individual
**required courses

Fall Semester, first year:
Core course 3 SH
Core course 3 SH
Core course 3 SH
8504 Seminar 1 SH (S/U)
5599 – Intro to Research Skills and Ethics 0 SH (Prerequisite for CHEM 5600)

Spring Semester, first year:
Core course 3 SH
Core course 3 SH
Elective course 3 SH
8504 Seminar 1 SH (S/U)
5599 – Intro to Research Skills and Ethics 0 SH (Prerequisite for CHEM 5600)

Summer Semester, first year (see M.S. options below):
5600 Research Skills and Ethics** 3 SH  **required course
7730 Advanced Laboratory Methods** 4 SH
8960 Exam Preparation - Doctoral** 0 SH (for doctoral students only)

Fall Semester, second year:
7750 Advanced Problem Solving** 3 SH
8504 Seminar** 1 SH (presentation; graded)
8984 Research 4 SH

Ph.D. Candidacy is reached at end of fall semester of the second year by passing cumulative exams and completing the required 33 SH of graded coursework.

*******
Options:
Thesis M.S.: if M.S. thesis option is chosen or cumulative exams are not passed, student could take: CHEM 5600 and 7730 or M.S. Research (4 SH) in summer; seminar (1 SH) and CHEM 5984 Research (6SH) in fall of 2nd year; CHEM 7996 M.S. Thesis Continuation (0 SH) and complete research and thesis in spring of 2nd year.
D. **Summary of Checkpoints in Thesis Programs**

1. **Choice of Research Advisor**: during first year before end of spring semester. Student must file Research Advisor Selection Form and receive departmental approval. (See Section II.G.1. and Appendix)

2. **Attainment of M.S. or Ph.D. Student Status**: after 2 semesters of residence with a GPA > 3.00. (See Section II.A.2.)

3. **Appointment of 3-person Thesis Committee**: before the start of the second year after attainment of M.S. or Ph.D. student status. (See Section II.G.3. and Appendix)

4. **Passing of Cumulative Exams**: during the first summer of study for students in the Ph.D. program.

5. **Establishment of Ph.D. Degree Candidacy**: passing of the cumulative exams, and completion of all required coursework, including a graded seminar. Ph.D. candidacy is typically achieved at the end of the fall semester of the second year.

6. **Review of Progress**: reviewed for GPA and requirements at the end of each semester for the first 2 years. The research progress of Ph.D. students is reviewed every year by the 3-person Thesis Committee. (See Section II.P. and Appendix)

7. **Graduation Clearance**: students approaching completion of degree (i.e., before the beginning of the final semester) should consult with departmental Graduate Administrator to check that all degree requirements are fulfilled. (See Section II.R.)

8. **Time Limits for All Programs and for University Financial Support**
   (See Section II.C and College of Sciences Graduate Programs Catalog.)
   a. General Time Limits:
      i. Course credits are valid for a maximum of seven years.
      ii. After the establishment of degree candidacy, a maximum of 5 years will be allowed for the completion of degree requirements.
b. University Financial Support Limits for M.S. Thesis Program:
   i. Students in the terminal M.S. program are not normally supported after the end of the spring semester of the second year.
   ii. Students who fail to pass the cumulative exam series are not supported after the end of the fall semester of the second year (or after the spring semester of the first year for students already having approved M.S. degrees).

c. University Financial Support Limits for Ph.D. Thesis Program:
   i. Support beyond the spring semester of the fifth year (fourth year for a student who entered with an approved M.S.) may be provided only on a favorable written recommendation from the student's Thesis Committee and approval by the Academic Standing Committee.
   ii. Further extension of support beyond the spring semester of the sixth year (fifth year for those who entered with approved M.S.) requires a favorable written recommendation from the Thesis Committee and approval by a 2/3 vote of the full departmental faculty.
   iii. No support beyond the seventh year.

E. Academic Advisors

1. Academic Advisors for Part-time M.S. Students
   The Graduate Coordinator serves as the academic advisor for part-time non-thesis M.S. students. Students who wish advice from the advisor are strongly urged to e-mail first, and if necessary, to schedule a phone call or meeting. The Graduate Coordinator for the 2014-2015 academic year is Prof. Carla Mattos (c.mattos@neu.edu). Advice on registration and other issues may also be obtained from the Graduate Administrator, Ms. Cara Shockley (110 Hurtig; 617-373-2824; c.shockley@neu.edu).

2. Academic Advisors for First Year Students
   The purpose of these rules and regulations is to aid students in establishing a firm and broad enough foundation to build confidently upon for future research and in
finishing their degree in a timely fashion so that they can begin their professional careers. Taken altogether, they may seem a bit intimidating. To help first year students get started, professors are assigned by area of interest to serve as academic advisors for the first year. These advisors help the student pick the courses which best fit the student's own background and interests and conform to the various regulations. Meetings for first year students are usually scheduled to take place the week before Classes begin, but in any case, students should be certain to meet with their advisors before registration. The advisors for the current academic year are:

**Analytical – Paul Vouros**  
**Bio-organic/Medicinal - Graham Jones**  
**Physical, Inorganic & Materials – Eugene Smotkin**  
**Chemical Biology – Carla Mattos**

Once students identify a research advisor, the student's research advisor also becomes the student's academic advisor after the first year.

It is recommended that students enroll in three courses each semester in the first year. Specimen programs for first year students are listed below in Section I.H. for each of the traditional fields for a typical student. Each student's program, however, is tailored to fit that individual in consultation with the academic advisor and may vary from the typical program in that field.

**F. Full-Time Student Status**

According to University regulations:

1. **Students who hold Stipended Graduate Assistantships** (TA, RA, or stipended fellowship) will be considered full-time if enrolled for a **minimum of 6 semester hours** of credit for the semester.

2. **Students without a stipend** will be considered full-time if they are enrolled in a **minimum of eight semester hours** of credit for the semester. This includes students who hold NUTFs (tuition fellowship assistance only; no RA or TA stipend).
3. **Students in residence who are enrolled in Dissertation** (CHEM 9990), Research (CHEM 8984 or 8986), or PhD Exam Prep (CHEM 8986) are considered full-time.

4. **All graduate students who are in M.S. or Ph.D. Thesis or Dissertation Continuation** status (enrolled in CHEM 7996 or 9996) will be considered to be full-time if they are in residence. Non-resident students will be judged on a case-by-case basis. Such exceptions call for a petition via the Departmental Graduate Academic Standing Committee to the Graduate Student Services Director of the College of Science (COS).

   Only those graduate students who meet the criteria for full-time student status, as defined above, are eligible for financial support from the university. Note, however, that only full-time students in thesis programs are eligible for support through the Department of Chemistry and Chemical Biology (See Section I.A). **ANY STUDENT WHO IN ANY GIVEN SEMESTER FALLS BELOW THE MINIMUM NUMBER OF SEMESTER HOURS OR COURSES REQUIRED TO MAINTAIN FULL-TIME STATUS RISKS LOSS OF THAT SUPPORT.** International students risk loss of their student visa status. Students are strongly encouraged not to drop courses (i.e., take a "W") when this reduces their load below the minimum requirements.

   **International Students:** Maintaining your registration status as a full-time student is essential for international students, as is maintaining active status of your visa. Please keep in contact with the International Student and Scholar Institute (ISSI: [http://www.northeastern.edu/issi/](http://www.northeastern.edu/issi/)) for current regulations and reporting requirements of the Student Exchange Visitor Information System (SEVIS) of the U.S. Bureau of Immigration and Customs Enforcement (ICE).

**G. Summary of First Year Requirements in Ph.D. Program**

In summary, a first year student in the Ph.D. program who is supported on a Stipended Graduate Assistantship (SGA: Teaching or Research Assistantship or Stipended fellowship) normally takes 3 graduate courses during both fall and spring semesters, registers for seminar (CHEM 8504) each semester, registers for CHEM 5599 (prereq to CHEM 5600) in both fall and spring semesters, and in the summer registers for CHEM 5600 Research Skills and Ethics, 7730 Advanced Laboratory
Methods, and 8960 Qualifying Exam Preparation. The cumulative (qualifying) exams are taken in the first summer. Stipended graduate students must be enrolled for a minimum of 6 semester hours to maintain full-time student status. Other students with no university support or only a tuition fellowship must be enrolled for 8 semester hours to maintain their full-time student status. Students for whom English is a second language may be required to take a course in the English language center but will still need to take the same amount of graduate chemistry courses.

To remain in the Ph.D. thesis program after the spring semester of the first year, the student must have a minimum grade point average of 3.00. To continue in the M.S. thesis program the minimum average GPA must also be 3.00 (see Section II.A for details of GPA requirement). **Students must choose their research advisor by the end of the spring semester of the first year in order to be eligible for departmental financial support.**

**H. Specimen Programs for First-Year Students in Thesis Programs**

(Note: these are suggestions only—other course combinations are acceptable)

1. **Analytical Chemistry**
   
   **FALL SEMESTER**
   - CHEM 5611 Analytical Separations
   - CHEM 5612 Principles of Mass Spectrometry
   - CHEM 5621 Principles of Chemical Biology, CHEM 5644 Principles and Analysis of Carbohydrates or another graduate chemistry course
   - CHEM 5599 Intro to Research Skills and Ethics
   - CHEM 8504 Graduate Seminar
   
   **SPRING SEMESTER**
   - CHEM 5620 Protein Chemistry
   - CHEM 5660 Analytical Biochemistry
   - CHEM 5621 Principles of Chemical Biology
   - CHEM 5645 Drug Discovery and Development, or another graduate chemistry course
   - CHEM 5599 Intro to Research Skills and Ethics
CHEM 8504 Graduate Seminar

2. **Organic Chemistry**

   **FALL SEMESTER**
   
   CHEM 5626 Organic Synthesis I
   
   CHEM 5627 Mechanistic & Physical Organic Chemistry
   
   CHEM 5645 Drug Discovery and Development or other approved graduate chemistry course
   
   CHEM 5599 Intro to Research Skills and Ethics
   
   CHEM 8504 Graduate Seminar

   **SPRING SEMESTER**
   
   CHEM 5627 Organic Synthesis II
   
   CHEM 5676 Bioorganic Chemistry
   
   Elect one of the following:
   
   CHEM 5621 Chemical Biology, CHEM 5638 Molecular Modeling, CHEM 5645 Drug Discovery and Development or CHEM 5678 Radiotracer Design
   
   CHEM 5599 Intro to Research Skills and Ethics
   
   CHEM 8504 Graduate Seminar

3. **Physical/Materials/Inorganic Chemistry**

   **FALL SEMESTER**
   
   CHEM 5636 Thermodynamics
   
   CHEM 5637 Foundations of Spectroscopy
   
   CHEM 5627 Mechanistic and Physical Organic Chemistry or another graduate chemistry course
   
   CHEM 5599 Intro to Research Skills and Ethics
   
   CHEM 8504 Graduate Seminar

   **SPRING SEMESTER**
   
   CHEM 7247 Advances in Nanomaterials
   
   CHEM 5638 Molecular Modeling
   
   CHEM 5651 Materials Chemistry of Renewable Energy
   
   Or another graduate chemistry course
   
   CHEM 5599 Intro to Research Skills and Ethics
CHEM 8504 Graduate Seminar

4. **Chemical Biology**

**FALL SEMESTER**

CHEM 5621 Chemical Biology for Chemists

Two electives from the following:

- CHEM 5644 Principles and Analysis of Carbohydrates
- CHEM 5612 Principles of Mass Spectrometry
- CHEM 5636 Thermodynamics
- CHEM 5611 Analytical Separations

CHEM 5599 Intro to Research Skills and Ethics

CHEM 8504 Graduate Seminar

**SPRING SEMESTER**

CHEM 5620 Protein Chemistry

CHEM 5638 Molecular Modeling

Two electives from the following:

- CHEM 5660 Analytical Biochemistry
- CHEM 5645 Drug Discovery and Development
- CHEM 5676 Bioorganic Chemistry

CHEM 5599 Intro to Research Skills and Ethics

CHEM 8504 Graduate Seminar
II. REGULATIONS, REQUIREMENTS, AND GUIDELINES

A. Coursework Grades

1. Overall Grade Point Average (GPA)

   A student's GPA (also called a quality point average, QPA) is calculated by multiplying the numerical grade equivalent by the number of semester hour credits, summing the product for all courses taken, and dividing the result by the total number of course semester hours taken. For all advanced degree programs, a student must maintain a GPA of 3.00 or better to remain in good standing. A GPA of 3.00 or better is required for graduation from all chemistry graduate programs (non-thesis M.S., thesis M.S., and full-time Ph.D.).

   Student performance in graduate chemistry courses will be graded according to the traditional four-point academic scheme in which grades of "A, B, C, F" are numerically equivalent to 4.00, 3.00, 2.00 and 0, respectively. In graduate school, "D" grades are not awarded. Generally, "A" grades are reserved for student performance that is of the highest caliber. "B" grades are awarded for satisfactory performance. "C" and "F" grades reflect work that is below or dramatically below the performance normally expected in graduate work. If a student becomes seriously ill, is passing the course at that time, and is unable to complete his/her coursework, the professor may award the student a grade of "I" (incomplete), provided an "I" Grade Contract form is completed by the student and the professor. Students who receive an "I" have one calendar year to make up the missing coursework if they wish to clear the "I" from their permanent record.

   Students may withdraw from a course without penalty until the first deadline stated on the Academic Calendar published by the Registrar's Office. After this time, a student who withdraws from a graduate course will receive a "W" grade on their permanent record. Students may withdraw from graduate classes until the second deadline set by the Registrar's Office. The specific deadlines for withdrawal without a "W" and with receipt of a "W" grade are published by the Registrar's Office each term and graduate students are responsible for acquiring this information.
2. **GPA Requirements for Continuation Beyond Second Semester**

Graduate students in thesis programs in the Department of Chemistry and Chemical Biology must maintain full-time student status and must meet certain standards of performance in courses in their first two semesters in order to be considered as making satisfactory progress. If students meet these standards, they may continue in the program and qualify as M.S. or Ph.D. students the first summer and into the second year. The standards for the M.S. and Ph.D. programs are listed below.

a. **M.S. Program**

A GPA ≥ 3.00 in at least 5 chemistry graduate courses numbered from CHEM 5550 through CHEM 7999 must be achieved during the first two semesters to continue beyond the spring semester in the graduate program as an M.S. student. (A final GPA of 3.000 is needed for graduation.) Up to 6 semester hours of approved graduate courses from outside the Department may be used in establishing the minimum GPA. Approval for such courses must be sought in advance from the Graduate Coordinator. If more than 5 courses are taken, one course may be dropped for the purpose of computing the GPA needed for continuation.

b. **Ph.D. Program**

A GPA ≥ 3.00 in at least 5 courses numbered from CHEM 5550 through CHEM 7999 must be achieved during the first year to continue in the Ph.D. program. (A GPA of 3.000 is required for graduation.) Up to 6 semester hours of approved graduate courses from outside the Department may be used in establishing the minimum GPA. Approval for such courses must be sought in advance from the Graduate Coordinator. If more than 5 courses are taken, one course may be dropped for the purpose of computing the GPA.

c. **Exceptions**

International students required to participate in courses in the English Language Center may have the expected number of courses taken in the Department reduced by restrictions placed because of the testing process. The English courses are not included in calculating the first year GPA required in determining satisfactory progress. If a student has not completed the minimum of 5 graduate courses solely because of such coursework restrictions, the
student will have their standing as a M.S. or Ph.D. student determined at the end of the semester in which their fifth course is completed. For students taking remedial undergraduate courses, which carry graduate numbers outside of the above listed numbers, all such courses are included in calculating first year averages.

3. **GPA Requirement for Continuation in the Non-thesis M.S. Program**

Graduate students in the non-thesis, coursework-based M.S. program of the Department of Chemistry and Chemical Biology will be reviewed annually to determine whether they are making satisfactory progress toward the degree. Such students must complete at least two courses (6 SH) per year and must have achieved a GPA of at least 3.00 after 15 SH and maintained the 3.00 after 24 SH in order to be considered as making satisfactory progress. Note that the graduation requirement is a GPA of 3.00.

**B. Credit Hour Requirements of the Graduate Programs**

1. **Ph.D. Program**

For a student entering the Ph.D. program with a B.S. degree, current regulations require at least 18 semester hours of lecture-based courses in graduate courses numbered from CHEM 5550 through CHEM 7999, plus an additional 3 SH in CHEM 5600 (Note: CHEM 5599 must be taken as a prereq to CHEM 5600 in fall and spring), 4 SH in 7730 and 3 SH in 7750. Up to 9 semester hours of graduate courses from outside of the Department may be substituted with prior approval of the Department. At least 4 semester hours of CHEM 8984 Research, and 1 semester hour of graded seminar, CHEM 8504, make up the balance of the total 33 semester hours of credit. (If more than 4 SH of Research were registered for, only the first 10 SH count towards the total credits required for the Ph.D. degree.)

For a student entering the Ph.D. program with an approved M.S. (see Section II.I), required coursework is 6 SH of lecture-based credits in graduate courses numbered from CHEM 5550 through CHEM 7999, plus 1 SH of graded seminar. CHEM 5600 (3 SH) Research Skills and Ethics is a required course unless an equivalent
course has been completed during M.S. study. (Note: CHEM 5599 must be taken as a prereq to CHEM 5600 in fall and spring.)

2. Thesis M.S. Program

For the thesis-based M.S. program, at least 18 semester hours of credit in graduate courses numbered from CHEM 5550 through CHEM 7999 are required, plus an additional 3 SH in CHEM 5600 (Note: CHEM 5599 must be taken as a prereq to CHEM 5600 in fall and spring). Up to 6 semester hours of graduate courses from outside of the Department may be substituted with prior approval of the Graduate Coordinator. At least 10 semester hours of Research CHEM 5984, and 1 semester hour of graded seminar, CHEM 5904 make up the balance of the total 32 required semester hours of credit. (If more than 10 SH of M.S. Research were registered for, only the first 10 SH count towards the total credits required for the M.S. degree.) The research credits can also be satisfied with 6 SH of M.S. Research, CHEM 5984, plus 4 SH of CHEM 7730 Advanced Laboratory Methods.

3. Non-thesis M.S. Program

For the non-thesis, coursework-based M.S. program, at least 30 semester hours of credit in graduate courses numbered from CHEM 5600 through CHEM 7999 are required. Up to 6 semester hours of graduate courses from outside of the Department may be substituted with prior approval of the Graduate Coordinator. Full-time students opting to obtain a non-thesis M.S., either in the course of their studies or in leaving the full-time program, may only count up to 8 SH of CHEM 8984 Master's Research credit (considered equivalent to CHEM 8505 and 8506, Directed Laboratory and Directed Literature Research) towards this degree.

C. Course Distribution Requirement for Coursework M.S.

A distribution requirement has been established to provide some breadth in the program for the coursework-based M.S. For the non-thesis, coursework-based M.S., the distribution requirement is 12 SH of credit from outside a main area of specialization
(analytical, biochemistry, organic, physical), distributed over at least two additional areas.

A list of lecture-based graduate courses and the distribution area they fulfill is provided in the table below. Please refer to http://www.northeastern.edu/registrar/cdr.html for course descriptions and relevant prerequisites.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Categories and Titles</th>
<th>SH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM:</td>
<td><strong>Analytical Chemistry</strong></td>
<td></td>
</tr>
<tr>
<td>5611</td>
<td>Analytical Separations</td>
<td>3</td>
</tr>
<tr>
<td>5612</td>
<td>Principles of Mass Spectrometry</td>
<td>3</td>
</tr>
<tr>
<td>5614</td>
<td>Electroanalytical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>5613</td>
<td>Optical Methods of Analysis</td>
<td>3</td>
</tr>
<tr>
<td>7301</td>
<td>Special Topics in Analytical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>5660</td>
<td>Analytical Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>7317</td>
<td>Analytical Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>5669</td>
<td>Environmental Analytical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>5644</td>
<td>Principles and Analysis of Carbohydrates</td>
<td>3</td>
</tr>
<tr>
<td>5616</td>
<td>Protein Mass Spectrometry</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Inorganic and Materials Chemistry</strong></td>
<td></td>
</tr>
<tr>
<td>5646</td>
<td>Synthesis and Reactivity of Inorganic Compounds</td>
<td>3</td>
</tr>
<tr>
<td>7305</td>
<td>Special Topics Inorganic and Materials Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>5696</td>
<td>Organometallic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>5687</td>
<td>Principles of Solid State Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>5698</td>
<td>Physical Methods in Chemistry</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Organic Chemistry</strong></td>
<td></td>
</tr>
<tr>
<td>5626</td>
<td>Organic Synthesis I</td>
<td>3</td>
</tr>
<tr>
<td>5627</td>
<td>Mechanistic and Physical Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>5628</td>
<td>Spectroscopy of Organic Compounds</td>
<td>3</td>
</tr>
<tr>
<td>7310</td>
<td>Special Topics in Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>5672</td>
<td>Organic Synthesis II</td>
<td>3</td>
</tr>
<tr>
<td>5676</td>
<td>Bioorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>5645</td>
<td>Drug Discovery and Development</td>
<td>3</td>
</tr>
<tr>
<td>5625</td>
<td>Chemistry &amp; Design of Protein Pharmaceuticals</td>
<td>3</td>
</tr>
<tr>
<td>5610</td>
<td>Polymer Chemistry</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Physical Chemistry</strong></td>
<td></td>
</tr>
<tr>
<td>7247</td>
<td>Advances in Nanomaterials</td>
<td>3</td>
</tr>
<tr>
<td>5638</td>
<td>Molecular Modeling</td>
<td>3</td>
</tr>
<tr>
<td>5636</td>
<td>Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>5637</td>
<td>Foundations of Spectroscopy</td>
<td>3</td>
</tr>
<tr>
<td>5639</td>
<td>Chemical Kinetics</td>
<td>3</td>
</tr>
<tr>
<td>7320</td>
<td>Special Topics in Physical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>5686</td>
<td>Fundamentals Molecular Structure &amp; Electronics</td>
<td>3</td>
</tr>
<tr>
<td>5688</td>
<td>Principles of Magnetic Resonance</td>
<td>3</td>
</tr>
<tr>
<td>5651</td>
<td>Materials Chemistry of Renewable Energy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Chemical Biology</strong></td>
<td></td>
</tr>
<tr>
<td>5621</td>
<td>Chemical Biology for Chemists</td>
<td>3</td>
</tr>
<tr>
<td>5620</td>
<td>Protein Chemistry</td>
<td>3</td>
</tr>
</tbody>
</table>
D. Courses Beyond the Minimum Requirements

Students are only allowed to take additional coursework beyond the minimum number of courses required for the degree by special request from the research advisor. The advisor must email the rationale to Cara Shockley (c.shockley@neu.edu) to ensure the tuition waiver can be applied. If the course is from outside the College of Science, approval must also be obtained from the Graduate Coordinator.

E. Seminar

All full-time graduate students are required to attend departmental colloquia and graduate student seminars in each fall and spring semester while in the program. (PhD students - CHEM 8504 Seminar, MS students - CHEM 5904 Seminar.) All full-time graduate students are required to present a seminar during the first two years of study, usually in the fall semester of the second year. Ph.D. students are expected to give at least one more seminar, with the final presentation being a seminar describing their research accomplishments, to be presented in their final year. This final public seminar will be on the day of the Dissertation Defense immediately before the private defense portion. The student will be responsible for booking a room for the public seminar and the private defense, recognizing that they may want to schedule a larger room for the public seminar portion.

During the semester in which the student presents a seminar, a letter grade (A through C, or F) is given for CHEM 8504 or CHEM 5904. During all other semesters, a grade of S or U (satisfactory or unsatisfactory) is issued. Unexcused absences from seminars will lower the student’s grade for seminar for that term, and may result in a grade of unsatisfactory (U) or failure (F).

F. CHEM 5600: Research Skills and Ethics

This course is a required element for all full-time thesis M.S. and Ph.D. students. One of the aims of the course is to acquaint students with the purpose of the graduate school and the resources available to graduate students to assist them in making satisfactory progress toward their degree. Additional aims are to develop research and
presentation skills, and to educate in regard to ethical standards. Students in the thesis M.S. and Ph.D. degree programs are normally expected to take this course during their first year (first summer) of residency. Prior to the summer course, students must register for CHEM 5599 Introduction to Research and Ethics in both fall and spring semesters. There will be some class meetings and assignments determined by the professor of the course during the fall and spring semesters. Course credit for this course does not count toward the semester hours of course credits required to be completed in chemistry courses numbered from CHEM 5601 through 7999 for the thesis M.S. and Ph.D. programs.

G. Research
1. Selection of Ph.D. or M.S. Research Advisor

Research advisors are selected by mutual agreement between the student and the faculty member along with the concurrence of the Department Chair, representing the rest of the faculty. All new students in thesis programs are expected to formally select their research advisor by the end of their second semester of residence. The choice of a research advisor is a very important step in a student's graduate career since it will mold the student's interests and approach to science. This should be done only after careful consideration.

To help in this process, a poster session will be scheduled for either late fall or early in the spring semester, during which each research professor will give a presentation of work going on in that professor's group. Students must attend this poster session or any other events scheduled for this purpose. In addition, the student must make appointments and discuss individually with at least three faculty members regarding the type of research that is being done under that faculty member's direction.

Chemistry is no longer rigidly defined by the traditional areas of analytical, biochemistry, inorganic, organic and physical chemistry. The research of virtually every professor encompasses more than one area of research; the designation of analytical, biochemistry, etc. is merely organizational and historical. First year graduate students are strongly encouraged to speak with more than three potential advisors before finalizing their selection. Familiarity with research in the department in general will be of great value in generating ideas and utilizing the resources of the whole department.
Specific problems that the student might investigate should also be explored with each faculty member. Before making a final choice, a student is encouraged to talk with other students and post-doctoral fellows working with a particular faculty member to gain further insight into the research.

Students may begin research in their first semester with a research advisor, but students are allowed to alter their choice after a semester of research. Selection of an advisor will be regarded as tentative until the end of the spring semester.

The **Research Advisor Selection Form** (see appendix at end of this Guidebook) is used to indicate that the student has discussed research possibilities with at least three professors (signatures are required), the student's choice of a research advisor and his/her concurrence, the student's degree goals, the proposed funding approval by Rich Pumprey and the approval of the Department Chair. The Research Advisor Selection Form must be filed by the end of the spring semester of the first year with the Departmental Graduate Administrator, Cara Shockley. Upper-level graduate students must also file the Research Advisor Selection Form with Cara Shockley if there is a change in research advisor later on. Late changes in advisor tend to be disruptive to the student’s progress and possibly to the research program of the advisor. Therefore, changes must be approved by the Department Chair.

2. **Summer Financial Support for Students**

Financial support will be recommended by the Department in the form of available Teaching Assistantships or Research Fellowships for all students originally admitted with TA support who are in good standing and who have successfully completed their first year of residence (see Section II.A.2).

3. **Appointment of Three-Person Thesis Committee**

When a thesis student qualifies to continue M.S. or Ph.D. studies for the second year, a three-person **Thesis Committee** is named by the student's research advisor. This committee includes and is chaired by the research advisor (see Section II.P.1). The constitution of the committee requires approval by the Chair of the Graduate Academic Standing Committee. The Thesis Committee must be named, approved and turned in to Cara Shockley (she will obtain approval from Graduate Academic Standing
Committee) before the student will be allowed to register for the semester following attainment of M.S. or Ph.D. qualification. The thesis committee reviews the progress of the student at least annually; see Section II.P.1 of this guidebook.

H. Students Requiring Remediation or Training in the English Language Center

Some entering students are not able to pursue the normal program because (1) they have undergraduate deficiencies or (2) are restricted by the English Language Center to a one or two course limit for one or more semesters.

1. Remediation

A number of the standard undergraduate courses required in an A.C.S. approved chemistry major curriculum have been assigned graduate numbers. These courses are listed in the current Graduate Catalog and are available for remedial purposes up to a maximum of three courses for any one student. The student, the academic advisor, and the graduate coordinator determine what, if any, remediation is needed on a case-by-case basis. A full-time first-year graduate student normally takes 3 courses each semester; this may differ for students taking remedial courses, but the 6 CH minimum for a full-time student on RA or TA must be observed. The end of the spring semester will still be used as a checkpoint for students in the remedial program even though they may not have taken 5 graduate courses. A GPA of 3.00 in all courses taken, calculated on the basis that all courses count equally regardless of credit, will be required in order for the student to continue into the next year of the program.

2. Students Requiring Training in the English Language Center

International students who are required to participate in the programs of the English Language Center may have restrictions placed on the number of academic courses normally taken each semester. Such students will be required to achieve a minimum GPA of 3.00 in their academic courses by the end of the spring semester of their first year of residence in order to continue in the program.

Students requiring extensive remediation or training in the English Language Center might not complete the minimum of 5 graduate courses after 2 semesters of
residence. All such students will have their status (Ph.D. or M.S.) determined after the semester in which their fifth course is completed.

I. Students Entering with a Master's Degree

Students entering the Ph.D. thesis program who already have a master's degree from a country outside the U.S. are still treated as first year students with a B.S. unless otherwise decided by the student in consultation with the Graduate Coordinator. This policy has been adopted because the methods of training elsewhere are frequently sufficiently different from those prevailing in United States that these master's degree students have found it best to take all the courses of a first year student coming in with an undergraduate degree.

However, if the M.S. is in Chemistry and from a U.S. institution, or it is decided that the previous international M.S. training received by the student is adequate, the student can proceed directly to research and will take the cumulative examinations in the summer before or after their first year. A formal petition to the Departmental Graduate Academic Standing Committee is required for this purpose for international students, or for domestic students if the M.S. is not in Chemistry but in a closely related field. If approved, a memo will then be sent to the College of Science Director of Student Services as soon as possible containing the Department's recommendation that the student's Master's degree be regarded as equivalent to the M.S. in Chemistry from Northeastern University.

The only formal course requirements for students entering with an approved M.S. are 6 semester hours of Chemistry or other approved graduate courses, plus the requirement of a seminar presentation in CHEM 8504. The 6 semester hours must include CHEM 5600 Research Skills and Ethics (and 2 semesters of CHEM 5599 as a prerequisite), if an equivalent course has not been taken at the previous institution. In order to maintain full-time status, a student may need to sign up for CHEM 7996, Thesis Continuation, (or another course that confers full-time status—see section 1.F) each semester until officially becoming doctoral candidates by completing the coursework, including the graded seminar, and the cumulative examinations are passed.
J. Research Courses

After the first two semesters, the programs followed by students in the full-time thesis M.S. and Ph.D. tracks differ considerably.

1. CHEM 8984 & 8986 M.S. Research

The M.S. student must concentrate on finishing up the required coursework, carrying out research and completing the M.S. thesis by the end of the spring semester of the second year. If the student is in the M.S. program at the end of the first two semesters, a minimum of 10 semester hours of CHEM 8984 M.S. Research must be completed, and only 10 SH will count toward the degree credit hour requirements. If the student changes from the Ph.D. program to the M.S. program at the end of the first summer, the equivalent 10 SH can be achieved by the combination of 6 SH of CHEM 8984 and 4 SH of CHEM 7730 Advanced Laboratory Methods. The course number for M.S. Research is CHEM 5984 and can be registered for 1-4 SH. CHEM 8986 is for 0 credit hours, and can be used when a student no longer needs the credit hours.

Ph.D. students take 4 SH of Research (CHEM 8984) in the fall semester of the second year as part of the qualification for Ph.D. candidacy.

2. CHEM 9996 Thesis Continuation

CHEM 9996 Thesis Continuation must be used for registration in each semester after the required amount of credit for Research is obtained, until doctoral candidacy is established (completion of coursework and passing of the cumulative exams) or the M.S. thesis is completed, approved, and submitted. This course will give graduate students full-time status in the program.

3. CHEM 9990 Dissertation

Doctoral candidates must register for CHEM 9990 Dissertation, for two consecutive semesters commencing after the time when Ph.D. Candidacy is established. (This is typically during the spring and summer semesters of the second year.)

4. CHEM 9996 Dissertation Continuation

CHEM 9996 Dissertation Continuation is used each semester after Doctoral Candidates have registered in two consecutive semesters for CHEM 9990 Dissertation. Doctoral Candidates must maintain continuous registration using CHEM 9996,
Dissertation Continuation, until they have passed the final oral examination on their dissertation and their Ph.D. thesis is approved, signed, and submitted. PhD students must be registered for CHEM 9996 during the semester they defend their dissertations.

K. Cumulative (Qualifying) Examinations
1. General Regulations
   An important requirement for Ph.D. candidacy is passing the cumulative examinations. These consist of a series of five exams. Only one series of examinations will be given in any one year, typically in the summer. Students must take and pass the qualifying examinations at the first opportunity after they are eligible to take the exams.

   Examinations will be offered in the areas of analytical, physical/materials, bio-organic/medicinal chemistry, and chemical biology. Full-time faculty representing those fields will administer the exams. They constitute the Ph.D. qualifying examinations of the general graduate regulations and may only be taken by doctoral students. A student may take the cumulative exam series only once. Three passing grades satisfy the cumulative requirement. Once a cumulative exam series is started, every exam in that series must be taken until three exams have been passed or three exams have been failed. Skipped exams will be considered as failures. The only exception permitted is for illness, and requires the approval of the Departmental Graduate Academic Standing Committee.

   Students planning on taking the cumulative exams must register for CHEM 9000, PhD Qualifying Exam Preparation. This is a zero credit hour course that will allow students to be recognized as full-time students even if they are not registered for any other course. The course will be graded on a satisfactory/unsatisfactory basis, S/U, depending on whether the exam series is successfully passed (S) or failed (U).

   A schedule of exams will be announced in advance. Exams from all four areas will be available for each of the exam days. The necessary three passing performances on exams may include exams from areas outside the field of the student’s principal specialty. The subject matter of each exam is at the discretion of the faculty member who prepares the exam. An exam may cover a general area or it may have a specific topic. The nature of the exam and the specific topic, if applicable, will typically be announced approximately one week in advance of the exam date. Students must select
the exam that they will take and notify the graduate administrator of their choice a week prior to the exam. Exams with a specific topic may focus on a particular sub-area or a set of literature references, but as these are cumulative exams, the questions do not have to be narrowly restricted to the topic. Exams are intended to be finished within 2 to 3 hours with some exams taking longer than others. Exams will typically consist of essay questions and/or problems to be solved, not multiple choice or true/false questions.

The cumulative exams are intended to evaluate the level of knowledge, preparation, analytic skills, and abilities considered appropriate for a student at the Ph.D. level. This standard requires a performance at least at the equivalent of a grade level of B or higher in graduate coursework. Each cumulative exam will be graded by the faculty member administering the exam without the assistance of other faculty or students. Students will be given a grade of Pass (P) or Fail (U). Faculty members are strongly encouraged to provide markings or corrections on student exam papers, or provide an answer key, so that students can understand their performance. Either the original or a copy of the exam paper should be returned to the student for review, and the faculty member should retain a copy or the original until the entire exam series is over.

If a student believes that an exam was graded improperly, the student must first attempt to resolve the dispute by consulting with the faculty member who administered the exam. An appeal is possible, but students must understand that a matter of judgment by the professor in grading is unlikely to be overturned. However, a student who thinks that there was impropriety or unfairness involved in the grading may appeal on such grounds by written petition to the Graduate Academic Standing Committee of the Department, which will attempt to resolve the dispute in a timely manner, generally within two weeks. Students who have filed an appeal are advised to prepare and take subsequent cumulative examinations while waiting for the results of their appeal.

2. Eligibility Requirements

A student is eligible to take the cumulative examinations only if enrolled in the Ph.D program or in the industrial Ph.D. program and has satisfied one of the following options:

a. The student has entered with a bachelor's degree, has achieved a
satisfactory performance through the first 2 semesters of residence (see II.A.2), and has a minimum GPA of 3.00 at the time of the exam series.
b. The student has been admitted to the doctoral program with an approved master's degree. (See Section II.I.)

L. **Time Limits for Degrees and University Financial Support**
   The primary purpose of time limit regulations is to aid students in finishing their degrees in a timely fashion so that they can begin their professional careers. Besides the obvious benefits to the student, timely finishing of degrees enables the Department to utilize its financial, space and personnel resources more efficiently. The College of Science has some general regulations governing the length of time a student may continue in graduate programs. Because a student must be in good academic standing to receive any type of University financial assistance, these College regulations must always be observed. They are listed below.

1. **General College of Science Regulations**
   a. Course credits earned in the program of graduate study or accepted by transfer are valid for a maximum of seven years, unless an extension is granted by the Graduate Student Services Director in the College of Science. Students should petition, in writing, through their Department to the College of Science for such extensions.
   b. After the establishment of degree candidacy, a **maximum of five years** will be allowed for the completion of degree requirements. Formal degree candidacy is established when students have completed coursework requirements (see Section II.B) or have had an earned Master’s degree accepted by the Department (see Section II.I), have passed the qualifying examination (see Section II.K), and in all cases have been certified by the Graduate Student Services Director of the College of Science.
2. **Source of support**

   The time limitations apply equally, regardless of the source of support, since the nature of the support does not affect any of the purposes for imposing time limitations. This applies to RAs, TAs, and any stipended fellowship as sources of support.

3. **Terminal M.S. Program**

   Students who are enrolled in the terminal M.S. degree program in chemistry at the end of their first 2 semesters of study will be expected to complete all the requirements for the master's degree by the end of the spring semester of their second year. Students in the M.S. program will not normally receive University financial support in the form of TA and will not be entitled to any form of University financial support beyond the spring semester of their second year of study.

4. **Ph.D. Students Who Fail the Cumulative Exams**

   Students who entered the program with a baccalaureate degree, or who waived their M.S. degree, and who do not pass the cumulative exam series will be expected to complete all the requirements for the M.S. degree in chemistry by the end of the spring semester of their second year of study. Students in the M.S. program will not normally receive University financial support in the form of TA and will not be entitled to any form of University financial support beyond the spring semester of their second year of study.

   Students who entered the Ph.D. program with an M.S. degree that was approved as equivalent to an M.S. from Northeastern (see Section II.I) and who fail to pass the cumulative exam series by the beginning of their second year of residence (i.e. during the summer after their first year) will not be further supported. The Graduate Academic Standing Committee of the Department may decide that such a student has not made satisfactory progress toward a degree and is terminated not only from the Ph.D. program but also the M.S. program.

5. **Ph.D. Program**

   a. **Students entering with a B.S. or a waived M.S. degree, or who are admitted into the Ph.D. program after completing an M.S. degree** are eligible to receive full support through the spring semester of the fifth year following their
initial full-time entry into the graduate program, provided they are in continuous residence during that period. Obviously, students who have been granted leaves of absence will have their eligibility for financial support extended by a period equal in length to that for which they were not actually present in the Department.

Students who are in their fifth year, unless they will complete their thesis by the end of the spring semester, must have a meeting with their three-person Thesis Committee for a thorough review of their progress and to get suggestions for what remains to be done to complete the thesis. In order to be eligible for financial support beyond the spring semester of the fifth year, the Academic Standing Committee must receive a favorable written report from the student's Thesis Committee indicating that the student is making good progress with an excellent expectation of being able to complete an acceptable thesis within one year. With a favorable report, the Academic Standing Committee may judge the student to be making good progress and extend the student's eligibility for up to one additional year. Barring such a favorable report the Academic Standing Committee will judge the student to be making unsatisfactory progress and all financial support will be terminated at the end of the spring semester of the fifth year.

Students who were judged to be making good progress at the 5-year review and whose eligibility for financial support has been extended must have another meeting with their three-person Thesis Committee for an additional review unless the thesis will be completed before the end of the specified time. For a student to receive any extension of eligibility for financial support, a request for such an extension will require approval by 2/3 vote of the full faculty. This vote will be positive only if a very convincing written report from the student's Thesis Committee overcomes the faculty's concern regarding the student's continued good progress and the reasons for the student still not having finished after the five year review had indicated that the thesis would almost certainly be finished before the end of the sixth year.

By the end of the student's seventh year, there will be an absolute cutoff of financial support and the seven-year University time limit rule would be used normally to terminate the student from the graduate program (see Section II.L.1).
b. Students entering with an un-waived M.S. degree are eligible to receive full support through the spring semester of the fourth year that follows their full-time entry.

Extensions of support are handled in the same way as for students entering with a B.S., described above. The five-year University time limit rule after establishment of Ph.D. candidacy would be used normally to terminate the student from the graduate program after the 6th year.

c. Students entering with credits between a B.S. and a M.S. degree, such as students admitted from the part-time program, will have their time limits set between 4 and 5 years by the Academic Standing Committee at the time of their entry into the full-time thesis program.

d. M.S. students who apply for admission to the Ph.D. program will be expected to complete their M.S. thesis within the time limitations that apply to all M.S. candidates. and will not be supported beyond the spring semester of their second year for the purpose of completing M.S. requirements.

e. Students who are admitted into the Ph.D. program after completing an M.S. thesis will still be expected to complete their Ph.D. requirements within the above stated time limits for Ph.D. students and will not be eligible for support as TAs beyond those specified time limitations.

M. Departmental Policies on TA Awards

1. Students Admitted with TA Support

Students who are originally admitted with TA support will be recommended for continuation of support up to the maximum period of eligibility dictated by their particular degree track, as long as they remain in good standing and their TA duties are performed satisfactorily. The eligibility limitations are specified in the preceding Section (II.L) "Time Limits for University Financial Support". Students in the M.S. program are not eligible for TA support.

2. Students Admitted without TA Support
Students who are originally admitted without TA support may be awarded TA positions if any become available during their tenure in the Department. Such appointments will be subject to the following limitations:

a. During the student's first year, available TA appointments will be recommended on a term-by-term basis for those individuals who have demonstrated to the Departmental Graduate Academic Standing Committee the best combination of high academic performance, English communication skills and, when appropriate, previous TA performance.

b. During the Spring semester of their first year, students originally admitted without TA support may apply to the Departmental Graduate Academic Standing Committee to be recommended for a regular TA award for subsequent years. The Department may decide to continue the original status or make a regular award.

N. Admission into the Ph.D. Program after Completion of an M.S. Thesis

For students who chose to be in the M.S. program, or who qualified for the M.S. program but not the Ph.D. program at the end of their first year (see Section II.A.2), may petition to be admitted into the Ph.D. program. Petitions for admission into the Ph.D. program after completing an M.S. at Northeastern will be dealt with by the Departmental Graduate Academic Standing Committee with input from the Graduate Admissions Committee. The petition for admission is normally filed after completion of the M.S. requirements. Note that this option is not a recommended path of choice for students who are intent from the beginning on obtaining a Ph.D. and who qualify in their first year. This path does not guarantee admission and may delay the progress and interrupt support. Only petitions from those candidates who satisfy all of the following criteria may be given a favorable consideration.

1. A candidate for re-admission may not have previously started a cumulative exam series.

2. The candidate must have obtained all necessary signatures on a completed M.S. thesis by the following deadlines:
   a. August 1 of the second year for students who initially entered the program in September;
b. November 1 of the second year for students who initially entered the program in January.

(One additional semester for the completion of the M.S. thesis will be permitted only for those students whose progress has been delayed by their participation in the English Language Center to the extent of two or more courses. For students with extensive remediation, i.e., two or more courses, deadlines will be established by the Departmental Graduate Academic Standing Committee on an ad hoc basis at the onset of the remediation.)

3. In order to be considered for admission, a candidate must have achieved a GPA of 3.00 in those courses (exclusive of Research and Seminar) which are to meet the course requirements of the Department of Chemistry and Chemical Biology for the M.S. degree, i.e., a minimum of 6 courses within the approved number sequence or approved graduate courses outside the Department. Up to two courses may have been repeated as permitted by general graduate school regulations.

O. Residence Requirement

The residence requirement is satisfied after one year of full-time graduate work or two years of half-time work.

P. Thesis and Oral Examination Committees

1. Three-person Thesis Committee and Annual Review

After a student has selected a research advisor and attained M.S. or Ph.D. student status (see Section II.A), a three-person Thesis Committee (recorded in the Appointment Form) is named by the research advisor, which includes and is chaired by the research advisor. (See Section II.G). The constitution of this committee requires approval by the Chair of the Graduate Academic Standing Committee. The Thesis Committee must be named, approved, and the Thesis Committee Appointment Form filed with the Graduate Administrator by the last day of the fall semester before students will be allowed to register for the next term.

In the case of the M.S. candidate, this committee constitutes the readers of the thesis. There is no departmental requirement for an oral examination for the M.S.
degree. The Thesis Committee may be convened periodically at the discretion of the research advisor prior to the submission of the M.S. thesis.

For a Ph.D. candidate, the Thesis Committee should review the progress of the student annually beginning in the student’s second year. The Thesis Committee Progress Report Form (see appendix) must be completed at least annually and turned into the Graduate Administrator by the first day of Summer I in order to be eligible to receive financial support in the fall semester and be able to register for courses.

If a student, advisor or other committee members deem an actual committee meeting is necessary, the Report of Graduate Student Research Progress (see appendix) will need to be completed and turned in to the Graduate Administrator within one week of the committee meeting.

2. Oral Examination Committee

For Ph.D. candidates nearing completion of the thesis research, the Thesis Committee is expanded by one additional member and becomes the Oral Examination Committee. Three members of this committee must be tenured or tenure-track faculty in this Department, or must hold such appointments in other academic units of this University with a joint appointment in CCB. The fourth member of the Committee may be a tenured or tenure-track member of either another Department of this University or another University or academic institution.

The Oral Examination Committee may be enlarged to five members at the discretion of the research advisor, to include additional faculty of this or other departments, faculty-level members of Institutes, and/or faculty from other institutions, or other appropriately qualified individuals.

Since the Oral Examination Committee is named by vote of the Department (College of Science regulation), the proposed list of the Committee membership must be circulated to the Department, by the Department Chair for faculty approval. Departmental approval must be obtained at least one month before the examination is to be held. Please send the list of committee members (and appointments if the member is external to the Department) to the Graduate Administrator via email at least 30 days ahead of the defense date. Circulation to the Department must be during the "regular" academic year, i.e., during the period between the beginning of the Fall
semester and the end of the Spring semester. In the case of the inability of an approved Committee member to serve, an appropriate substitute must be appointed. If this necessity arises during the regular academic year, Departmental approval must be obtained. If it occurs during the summer, the substitution must have the approval of the Department Chair.

A typed advance copy of the thesis must be circulated to the 3-member Thesis Committee for its approval prior to the preparation of the final copy. This regulation may be waived upon agreement between the research advisor and the members of the Thesis Committee. The final copy will then be circulated to the full Oral Examination Committee at least 2 weeks prior to the date of the thesis defense. Since the Oral Examination is open to the public the time and place where it is to be held must be announced to the Department, via memo, 2 weeks in advance. Send the dissertation abstract, time, date and location to the Graduate Administrator for circulation. The Oral Examination must be held at least 2 weeks before the degree is to be conferred (College of Science regulation).

Q. Format and Submission of Thesis

Students preparing an M.S. or Ph.D. thesis should consult the latest version of the Thesis and Dissertation Guidelines published by the College of Science and available on their web site (http://www.northeastern.edu/cos/current-students/current-cos-graduate-students/commencement/). It is extremely important to follow the current thesis formatting guidelines before it is submitted to the members of the departmental thesis committee, although the committee may ask for changes and corrections. The signature pages for a Ph.D. thesis should be available in correct format on the Graduate Approval Record Form (available on above website). Students are also encouraged to consult the library archives staff to ensure that their figures, etc., meet library guidelines. Students must schedule an appointment with the Director of the College of Science Graduate Student Services Department and have the final copy of their thesis approved. Those who wish to participate in either the spring or summer graduation exercises are strongly encouraged to pay particular attention to the COS deadlines for submission of the thesis that are also published on the COS website.
R. Clearance for Graduation

The last step before graduation is that the Graduate Coordinator/Administrator must complete and sign a clearance form indicating the fulfillment of all requirements. Students anticipating completion of their graduate program are strongly advised to complete the form in consultation with the Departmental Graduate Administrator, Cara Shockley, well in advance (typically before beginning of the last semester) to make sure that they have fulfilled all requirements and to ensure a timely graduation.
Appendix

Research Advisor Selection Form

Memorandum from Graham Jones, Department Chair on Thesis Committee Forms
Dated April 15, 2014

Thesis Committee Appointment Form

Thesis Committee Progress Report Form

Report of Graduate Student Research Progress
RESEARCH ADVISOR SELECTION FORM

TO: First Year Graduate Students
FROM: Graham B. Jones, Chair
SUBJECT: Choice of Advisor and Thesis Problem Degree Goals

Please use this 2-page form to indicate your choice of a research advisor and his/her concurrence, and your degree goals. Students must first discuss research opportunities with at least three professors before the final selection of an advisor; signatures of the three professors must be obtained on the form below. First-year students must complete the selection process and return this form before the end of the Spring Semester. Please return the completed form to Cara Shockley.

------------------------------------------------------

The undersigned acknowledge that _____________________________ (student’s printed name) has spoken with us about opportunities for graduate research:

Faculty Signatures:
Name: ___________________________ Signature: ___________________________ Date: ___________________________

Name: ___________________________ Signature: ___________________________ Date: ___________________________

Name: ___________________________ Signature: ___________________________ Date: ___________________________

Brief description of proposed research project and title:

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

M.S. only ______

Ph.D. only ______
Complete Co-Advisor Section (if applicable):

Co-Advisor’s Name (print) _________________________________

Co-Advisor’s Signature _________________________________ Date: __________

Budget Source: __________________________________________

Budget review completed by Richard Pumphrey:

_____________________________ Date______________________

(The signature of Richard Pumphrey is required before the Chair can sign)

Chair approval: ___________________________ Date: __________
MEMORANDUM - PRIORITY

TO: Graduate Students and Faculty
FROM: Graham B. Jones, Chair
CC: Carla Mattos, Graduate Coordinator
Cara Shockley, Graduate Administrator
DATE: April 15, 2014
RE: Thesis Committee Forms

I wanted to take a moment to send out some information to provide some clarification on the thesis committee forms and updates. There are three forms described below and all are attached to this email.

- The first form “Thesis Committee Appointment Form” is for second year PhD students in their first semester. This form allows students to develop their initial thesis committees.

  DUE DATE: Last day of Fall Semester (2nd year) to Cara Shockley.

- The second form is the “Thesis Committee Progress Report Form”. Progress reports should be conducted at least annually starting with second year students.

  DUE DATE: First day of Summer I classes to Cara Shockley.

- The third form is the “Report of Graduate Student Research Progress.” This form is only to be utilized if an actual committee meeting is deemed necessary either by the advisor, the graduate student or the other committee members. In most cases, the advisor will inform the graduate student for the need of this meeting.

  DUE DATE: Within one week of completion of committee meeting and after obtaining signatures; submit to Cara Shockley.

These forms are all attached to this email and they will be available at the bottom of the Northeastern Chemistry Graduate Website (at the end of the downloadable departmental brochure booklet). You can always request a copy via email from Cara Shockley.

For your convenience, please do not hesitate to ask any questions you may have to Cara Shockley (c.shockley@neu.edu or 110 Hurtig), as she is happy to assist to make this new committee meeting program successful.
Department of Chemistry and Chemical Biology

THESIS COMMITTEE APPOINTMENT FORM

When a thesis student qualifies to continue M.S. or Ph.D. studies for the second year, i.e., when a minimum of five courses have been completed after two semesters of residence with average grade ≥ 2.70 or ≥ 3.00 respectively, a three-person Thesis Committee is named. This committee includes and is chaired by the research advisor. The constitution of the committee requires approval by the Chair of the Graduate Academic Standing Committee. The thesis Committee must be named and approved before the student will be allowed to register for the semester following attainment of M.S. or Ph.D. qualification.

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<th>Name:</th>
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<td>Committee Chair</td>
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<td>Chair, Graduate Academic Standing Committee</td>
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Revised 2/20/2013
Complete the boxes shown in bold and send to your advisor.

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<thead>
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<th>Student Name:</th>
<th>Entry Year:</th>
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<tbody>
<tr>
<td>Advisor:</td>
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<tr>
<td>Date of this review:</td>
<td>Date of last review:</td>
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Thesis Committee Members:

List key achievements, problems with, and any changes to your thesis project(s)  
(Please consider goals outlined in any previous reports)

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A committee meeting should be held in _____ (month) of _____ (year).

Expected graduation date: _____ (semester) of _____ (year).
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<tr>
<th>Key goals</th>
<th>Estimated time to achieve</th>
<th>Committee’s comments</th>
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**Status of Publication(s):**

**Briefly describe your plans and preparation for your postgraduate career:**

_____ Check here to request a formal meeting with your committee.

**Signatures:**

Student: ____________________________________________

Advisor: ____________________________________________

Committee Member: __________________________________

Committee Member: __________________________________
Department of Chemistry and Chemical Biology

REPORT OF GRADUATE STUDENT RESEARCH PROGRESS

Student’s Name: __________________________ Date: _________

PROGRAM: MS THESIS __________ PHD __________

Written report of research progress is satisfactory: Yes____No____

Student making satisfactory progress towards research goals Yes____No____

Another meeting of the thesis committee is required: Yes____No____

Date Scheduled:____________________________________

Comments and recommendations of thesis committee: (or attach a report from the committee.)

___________________________________________

Research Advisor Signature

Date

___________________________________________

Second Committee Member’s Signature

Date

___________________________________________

Third Committee Member’s Signature

Date

Revised 4/15/2014
cjs