
Binghamton University
Department of Chemistry



Graduate Student Handbook 2023-2024

06/2023

GRADUATE PROGRAMS

RULES, REGULATIONS AND EXPECTATIONS

A. The Graduate Program Committee

1. The Chemistry Department's *Graduate Program Committee* (GPC) is the departmental agent for administering the PhD, MS and MA degree programs. Its chair is the Graduate Program Director. The GPC does the following:
 - (a) administers the placement examinations,
 - (b) makes recommendations for removing placement deficiencies,
 - (c) acts as student advisor and approves the student's course program until a faculty research advisor is chosen (see below),
 - (d) monitors the progress and performance of each student throughout the student's graduate program, by soliciting course evaluations, teaching performance evaluations and research progress evaluations from faculty; (it also solicits teaching performance evaluations from the Director of Instruction and Outreach, and research progress reports from the student),
 - (e) keeps the students apprised of their academic status and, in the case of teaching assistants, of teaching performance,
 - (f) adjudicates all student petitions (petitions should be directed to the chair of the GPC).
2. The GPC is made up of faculty representatives from the four subdisciplines (analytical, inorganic, organic and physical) and one graduate student chosen by the Graduate Chemistry Club.

B. University Regulations

1. GRE aptitude scores are required for regular admission into a graduate program. Students who do not submit GRE scores will be admitted with provisional status; students cannot graduate on provisional status.

The GPC does not initiate action to relieve provisional status, except to inform the student and the student's faculty research advisor that graduation is in jeopardy. A request to waive the GRE requirement must be initiated by the faculty research advisor and directed to the GPC. Grounds for waiving the GRE requirement must be given in detail; the GPC will not attempt to develop justification on its own.

The GPC may then decide to support the request by adding its endorsement and forwarding the request to the Graduate Office. If the faculty research advisor informs the GPC that the advisor does not support a waiver, or if the GPC does not support the research

advisor's request, or if the Graduate Office does not support the GPC-endorsed request, the graduate student will be instructed to register for the GREs. Until the faculty research advisor informs the GPC of the research advisor's intentions, the student remains in limbo.

2. *Transfer credit* is awarded by petition, using a specified petition form. Courses transferred will be above the introductory level in any sub-field; a grade of B or better is required. Transferred courses can be used to fulfill the department's required number of courses but cannot be used in determining the GPA graduation requirement of at least 3.0; they also cannot be used to satisfy the residency requirement.
3. A graduate student must remain in *good academic standing* and must continually make *satisfactory progress toward the degree*; otherwise, the student may be placed on probation and ultimately dismissed. Good academic standing is defined as maintaining a 3.0 GPA in course work. Satisfactory progress toward the degree is determined by the GPC on the basis of research performance, course work, and timeliness in completing degree requirements. See additional details on p. 6.

Teaching Assistants, in order to remain in good standing, must also perform their teaching duties satisfactorily. Teaching performance is an important part of the student's training program and the GPC will monitor the student's effectiveness closely. Unsatisfactory teaching will lead to loss of the assistantship and may lead to dismissal from the program.

4. New York State funds can be used to support the student's tuition for no more than four years in the Ph.D. program. For a student earning both an M.S. degree and a Ph.D. degree at Binghamton University, New York State funds can be used for no more than three years of tuition support beyond the M.S. degree.

A semester of Research Assistantship support is counted in this limitation if a tuition scholarship is awarded; semesters in which *any amount* of work/study support is received are also counted.

Formal requests for exceptions will be considered by the GPC only for Ph.D. students, if accompanied by a written statement of justification from the research advisor. The GPC may endorse the request and submit it to the Graduate Office for its approval.

C. Placement Examinations

1. Most of the basic courses in a student's program (see pp. 7 and 12) should be taken during the first year of residence. To better advise the new graduate students with their course work, the incoming students are required to demonstrate that they have sufficient background in undergraduate level chemistry. To that end incoming students are required to take standardized examinations. The Graduate Program Director will review the results with the students. The results of the exams will determine which courses the students should take.
 - (a) Placement Examinations will be offered in the following six sub-discipline areas: *Inorganic Chemistry, Organic Chemistry, Analytical Chemistry, Physical Chemistry, Biochemistry and Materials Chemistry.*

- (b) *Entering Ph.D. students* may take four of the above subjects and must *pass at least three placement examinations*. Students may not take *Biochemistry* and *Materials Chemistry* placement examinations at the same time. Deficiency arises when Ph.D. students pass fewer than three placement examinations.
- (c) *Entering M.S. students* may take two to three of the above subjects and must *pass at least two placement examinations*. Students may not take *Biochemistry* and *Materials Chemistry* placement examinations at the same time. Deficiency arises when M.S. students pass fewer than two placement examinations.
- (d) For an entering Ph.D. or M.S. student, not passing a placement examination in any sub-discipline area will prevent the student from enrolling in a graduate course in that sub-discipline area with the exception of a graduate course approved by the sub-discipline for compensation (see section 2(b)(iii)).
- (e) For entering M.A. students, it is *not mandatory* to take placement examinations. A M.A. student may enroll in a graduate course in any sub-discipline area without passing the placement examination in that area.
- (f) Entering Ph.D. or M.S. students who have already taken the undergraduate courses in Harpur College (within Binghamton University) specified by the sub-disciplines faculty may petition the GPC to have the corresponding placement examination(s) waived. The biochemistry or solid state/materials sciences requirement may be waived if the student transcript shows at least two courses in Harpur College or the Watson School (within Binghamton University) specified by biochemistry and materials faculty.

2. Removal of Placement Deficiencies.

- (a) For entering Ph.D. or M.S. students, all deficiencies *must be removed within twelve months* after entering the program. Failure will lead to dismissal from the program.
- (b) A placement deficiency in a sub-discipline is normally removed by course work as determined by the sub-discipline faculty. The following options will be given in all six sub-discipline areas to remove a placement deficiency:
 - (i) Student *receives a grade of B or better* (B, B+, A- and A based on the grading system used at Binghamton University, <https://www.binghamton.edu/registrar/student/transcripts/transcript-key.html>) in an advanced undergraduate-level course in Harpur College (numbered 300-499),
 - (ii) Student *receives a grade of S* in a remedial independent work assigned by the sub-discipline.
 - (iii) Student with a placement exam score above a certain threshold (as set by individual sub-disciplines) but below the passing line may *take and pass a remedial graduate course that is determined by individual sub-disciplines*.

- (c) A placement deficiency may also be removed by retaking and passing the Placement Examination successfully after a period of self-study. Placement Examinations are given three times a year: the week preceding the beginning of the fall semester, the first week of the spring semester, and the last week of the spring semester.
- (d) Satisfying the placement requirement is to be given absolute priority during the first two semesters in residence and will be the first concern in arranging the Ph.D. or M.S. student's schedule.
- (e) Ph.D. or M.S. students who do not pass any of the Placement Examinations upon entering will automatically be placed on probation; failure to remove at least two deficiencies by the end of the first semester will result in dismissal.

D. Research Advisor

1. Selection of a faculty research advisor by the end of the first semester is recommended and is required within the first twelve months after entering the program.
2. At the time of selecting a faculty research advisor, the student must have no more than one placement deficiency.
3. "Selection of Faculty Research Advisor" forms are available in the Department Office (Also available through the Chemistry PhD program website <https://www.binghamton.edu/chemistry/graduate/phd.html>, click on the expandable subject title "selection of research advisor" and the linkage to the PDF file). The student is required to make appointments with at least three faculty members in order to discuss research possibilities with them. The faculty members may be selected on the basis of research descriptions found in the department graduate brochure or other sources. Consulted faculty must initial the form. The student then makes a final selection from among the consulted faculty and returns the form to the Department Secretary for approval by the GPC.
4. The student shall declare an area of curricular specialization on the same form (analytical chemistry, inorganic chemistry, organic chemistry, physical chemistry, biological chemistry, materials chemistry). The student may later change the area of curricular specialization upon the recommendation of the student's research advisor and approval by the Graduate Program Committee. See also "Alternative Comprehensive Examination and Area of Curricular Specialization." (p. 9)
5. The student may not register for thesis or dissertation research until selection of a faculty research advisor is approved by the GPC.
6. Any student who is unable to find a research advisor, or whose research interests cannot be fulfilled by the current faculty, will be advised to receive a terminal MA degree and will not be eligible for financial support after the third semester of residence.

E. Research and Publication of Research

1. Policy on the Responsible Conduct of Research

The University's Policy on the Responsible Conduct of Research can be found at <https://www.binghamton.edu/research/compliance/responsibleconductofresearch.html>.

The policy defines research misconduct as fabrication, falsification, or plagiarism in proposing, conducting, or reporting research and creative scholarly activity. It does not include honest error or honest differences in interpretations or judgments of data. Allegations of research misconduct are reported to the Vice President for Research who has primary responsibility for overseeing research integrity.

2. Policies on Intellectual Property

The University's policy on Patent and Inventions Policy and Computer Software can be found at <https://www.binghamton.edu/research/innovation/index.html>. All persons using the facilities of Binghamton University must abide by these policies. These policies define what intellectual property is, that in most cases the State of New York owns the intellectual rights, and describe the rewards due the inventor of intellectual property.

3. Ethical Guidelines for the Publication of Research

The Chemistry Department requires all students to follow professional and ethical guidelines for publication of research as asserted by the American Chemical Society (ACS). ACS guidelines related to publication can be found at <https://pubs.acs.org/userimages/ContentEditor/1218054468605/ethics.pdf>.¹ These guidelines will be shared and discussed with all graduate students through the Graduate Seminar course (Chemistry 592). Students that do not adhere to these guidelines will be subject to penalties, which may include a recommendation to the Graduate School for dismissal from the program.

¹The American Chemical Society's Ethical Guidelines to Publication of Chemical Research include the following text:

"The co-authors of a paper should be all those persons who have made significant scientific contributions to the work reported and who share responsibility and accountability for the results. . . . The author who submits a manuscript for publication accepts the responsibility of having included as co-authors all persons appropriate and none inappropriate."

Graduate students are required to sign a statement that they have read, understand, and agree to these policies and guidelines.

F. Policy on Sexual Harassment

The University's Policy on Sexual Harassment can be found at <https://www.binghamton.edu/student-handbook/sexual-harassment.html>.

The State of New York has defined sexual harassment as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct or communication of a sexual nature when such conduct or communication has the purpose or effect of substantially interfering with an individual's education, or creating an intimidating, hostile, or offensive educational environment. The University regards any form of sexual harassment as a violation of the standards of conduct required of all persons associated

with the institution. Accordingly, those inflicting such behavior on others are subject to the full range of internal institutional disciplinary actions.

Graduate students are required to sign a statement that they have read, understand, and agree to this policy.

G. Course Requirements

Most of the basic courses in a student's program (see pp. 7 and 12) should be taken during the first year of residence.

Upon petition to the GPC, graduate courses previously taken elsewhere, or in another graduate degree program at Binghamton, may be used to satisfy the Chemistry Department's course requirement in the MA and PhD programs. This procedure is not the same as receiving transfer credit (p. 2). Only those courses for which transfer credit has been approved by the Graduate Office will appear on the student's transcript.

Courses presented to satisfy degree requirements must have a grade average of at least 3.0.

H. Satisfactory Progress Towards the Degree

All students are expected to make satisfactory progress toward their degree. This includes progress on research, publications, presentations, and department activities as directed by the research advisor. Specific expectations in each of these areas vary depending upon the nature of the research program and should be discussed with the advisor regularly during the course of the student's graduate work.

The Department seeks to achieve an average time to the Ph.D. degree of not more than 5.0 years. The following represents typical departmental expectations for satisfactory progress towards the degree and is designed to help meet the time to degree completion.

Graduate students are expected to:

- a. Attend the department seminar program throughout their career. Attendance is mandatory for all graduate students without ABD status (before reaching Admission to Ph.D. Candidacy) and at least 50% of the colloquia for students who have ABD status.
- b. Work in the laboratory on their research throughout the year, even when classes are not in session, as long as the campus is open and accessible. This includes winter break and summer session when large blocks of time become available for graduate students to make substantial progress on their work.
- c. Get permission from their research advisor, the instructor of the course for which they are teaching assistants, and/or Director of Instructional Programs / Laboratories if they are going to be away from the lab for a period of time. This includes winter or summer vacation time.
- d. Discuss with their research advisor the amount of vacation time per year. As a representative example, two weeks of vacation time is recommended by many faculty advisors.

- e. Publish their research results together with their research advisor. The number of publications will vary by discipline and research group.
- f. Communicate with their advisor and the department on any other items that may impact their satisfactory progress or time to degree completion.

For Ph.D. students, satisfactory progress toward their degree also includes completing degree requirements in a timely fashion:

- a. Comprehensive Literature Review examination, see pp. 7 and 8.
- b. Preliminary Oral Examination, see pp. 8 and 9.
- c. Dissertation Prospectus, see p. 9.
- d. Admission to Ph.D. candidacy (ABD status), see p. 9 and 10.
- e. Oral Progress Report, see p. 10

THE PhD PROGRAM

Summary of Requirements

1. Normally, at least six courses (24 to 32 credits), two of which may be from the fields of biology, mathematics or physics.

Biological Chemistry emphasis: at least three courses in chemistry, and the remainder from the fields of biological sciences and other sciences (physics, computer science, geology, mathematics or engineering), as approved by the faculty advisor for individual student programs, for a total of six to eight.

Materials chemistry emphasis: at least three courses in chemistry, including Chem 544, and at least two courses from the fields of materials science and engineering, geology, physics, or engineering, as approved by the faculty advisor for individual student programs, for a total of six to eight. Major three-credit hour courses of graduate programs in Watson School are considered automatically as four-credit hour equivalent after e-mail notification of the GPC chair.

2. Passing of a comprehensive literature review examination in a specialized area, followed by an oral examination in the specialization, and completion of the oral progress report schedule recommended by the Dissertation Committee.
3. One semester of Chemistry 592 (Graduate Seminar).
4. Two semesters of Chemistry 593 (Frontiers in Chemistry).
5. Completion of original research in a specialized area of chemistry.
6. Submission of a written dissertation and an oral defense of the dissertation.

A. Comprehensive Examination

The comprehensive examination consists of two parts, a comprehensive literature review (CLR) and an oral examination.

1. Comprehensive Literature Review

The CLR exam itself consists of an oral (CLR-o) and a written (CLR-w) part and is administered at the end of the spring semester, no later than four weeks from the completion of the Graduate Seminar course (Chem 592). The second and third CLR exams are offered, as needed, in the beginning and the end of fall semester respectively.

- (a) Only Ph.D. students who have met all placement requirements are eligible to take the CLR exam. Students who have not successfully completed all placement requirements by the time of the spring CLR exam have the option to take it for the first time in the fall semester.

PhD students who join the Chemistry Program in the spring semester should enroll in the Graduate Seminar course (Chem 592) in the spring semester and take the CLR exam typically in the following fall semester, or at a later time after having successfully completed all placement requirements.

- (b) All Ph.D. students who have successfully completed all placement requirements upon entering the program are required to pass the CLR exam by the end of the third semester in the program. All Ph.D. students who have placement deficiencies and score below the “*marginal*” threshold determined by sub-disciplines upon entering the program are required to pass the CLR exam by the end of the fourth semester in the program.

- (c) Eligible students will inform the Chem 592 instructor about their intent to take the exam by submitting a form that includes information about their choice of advisor along with identified field of research and topic for the exam. The topic may be related to but not exclusively focused on their intended/planned/ongoing research project activities. The advisor must co-sign this form as well.

Students who have registered for the CLR exam in a particular semester must complete both the written (CLR-w) and oral (CLR-o) parts of the exam. Exceptions (e.g., due to a medical emergency) need to be approved by the Graduate Program Director. Students who do not complete a registered CLR exam without a pre-approval will receive one “fail” for that exam. In the case of an exception, the student must reschedule the CLR within a month. A granted exception does not extend the time limit for the CLR exams specified in (b).

The work on the written component and the preparation for the oral part of the CLR exam should both be exclusively that of the student only.

Committees administering the exam in a relevant topic area/subdiscipline are appointed by the GPC and consist of at least three faculty members including the student’s research advisor, or a proxy chosen by the advisor. The committee must include one tenured professor besides the student’s advisor (or his/her proxy). The advisor (or his/her proxy) is present but does not participate in the exam evaluation process.

The exam consists of a 20-minute presentation followed by a discussion of up to 40 minutes. The total allotted time for the oral examination is one hour.

- (d) The student must submit a written report (CLR-w) on the comprehensive literature review to the Chemistry 592 instructor no later than a week before the CLR-o exam. The length of the CLR-w should be of the order of five pages (excluding references and figures). The CLR-w will be factored with weight of 25% in the overall exam evaluation.

Students who take the CLR exam offered in the fall semester (when no Chemistry 592 course is taught) must submit the written report on their CLR to the GPC chair no later than a week before the CLR-o exam. Students must submit their slides 24 hours before the CLR-o exam.

- (e) The faculty examiners restrict their questions and discussion to the specific topic of the exam. The student performance is assessed by the committee members based on an evaluation form that incorporates both the CLR-w and the CLR-o components of the exam.
- (f) Students who fail their first CLR exam will have the opportunity to retake it in the following semester. Failing the CLR examination a second time will be grounds for dismissing the student from the Ph.D. program.

2. Preliminary Oral Examination

- (a) After the passing the CLR exam, the preliminary oral examination where the student reports for the first time research project results must be completed before the beginning of the fifth semester.
- (b) For all students the Examination Committee will consist of at least four tenured or tenure track faculty members, including at least three chemistry tenured or tenure track faculty members, one of which must be tenured and not the student's dissertation research advisor. The committee will be chaired by a tenured chemistry faculty member other than the dissertation research advisor. The dissertation research advisor does not participate in the exam evaluation process.

For students in the Biological Chemistry emphasis program, one member of the examination committee may be a tenured or tenure-track faculty member outside the Chemistry Department but in the Biology field.

For students in the Materials Chemistry emphasis program, one member of the examination committee will be a tenured or tenure-track faculty member outside the Chemistry Department but in the Materials field.

- (c) The student should confirm the membership of the committee with the dissertation advisor and Graduate Program Director; arrange for a date and time acceptable to committee members; reserve a room for the examination with the department secretary; deliver an abstract (of approximately one page) to the committee members one week before the scheduled date; and deliver to the department secretary a notice including the abstract, a list of the committee members, and the exam's date, time and room number. The department secretary will then send

copies to all department faculty members, and post notices in public places in the department.

- (d) Following the preliminary oral examination, the Examination Committee will provide the student with a written evaluation of the student's performance. Possible outcomes are (i) a pass at the Ph.D. level that normally warrants an oral progress report in 18 months, a weak pass, that calls for an oral progress reports in at most a year, (iii) a failed attempt, with an option to retake the exam in three months, and (iv) a terminal failed attempt. If the student fails the examination, the Examination Committee will advise the student to receive a terminal Master's degree and the student will not be eligible for further financial support.

3. Alternative Comprehensive Examination and Area of Curricular Specialization

A student may, together with the student's faculty advisor, prepare a proposal, with justification, for an alternative comprehensive examination and area of curricular specialization and submit the proposal to the GPC for its approval. If approved, the research advisor and the student nominate a guidance committee of at least five faculty members, including at least three chemistry faculty members. The committee will be chaired by a tenured chemistry faculty member other than the dissertation research advisor. After approval by the GPC, the guidance committee becomes responsible for administering a comprehensive examination of the approved format, and for monitoring the student's progress toward the degree.

B. Dissertation Prospectus

A dissertation prospectus, appropriately approved, in writing, by the student's examination committee members, must be submitted to the GPC within one month or no later than the beginning of the next semester, whichever comes first, after a successful completion of the comprehensive oral.

The dissertation prospectus may be written either in narrative style or as an outline. It is typically two pages long, including the committee signatures, but may be longer.

The dissertation prospectus is not intended to be an abstract of the final dissertation. Rather, it is to reflect the current status of the dissertation research.

C. Admission to PhD Candidacy

After the student passes the oral examination and submits an approved dissertation prospectus, the student is admitted to Ph.D. candidacy and achieves ABD (All But Dissertation) status. The students are required to complete all comprehensive examinations and obtain the ABD status before the beginning of fifth semester.

In special circumstances, two credits of the Graduate Seminar requirement and two credits of the Frontiers in Chemistry requirement may be postponed until after admission to candidacy.

D. Dissertation Committee

The dissertation committee is normally the same as the comprehensive oral examination committee.

E. Oral Progress Report

Satisfactory progress toward the degree will require the student to present an oral progress report to the Dissertation Committee at a time to be determined by the Dissertation Committee. A normal timeline would require one progress report per year following the oral examination.

Following presentation of the oral progress report, the Dissertation Committee will provide the student with a written evaluation of the student's performance with the aim of advising the student how to progress. The Committee will also determine the date of the next required oral progress report.

Failure to present a progress report at the scheduled time or an unsatisfactory evaluation of any oral progress report will reflect unsatisfactory progress toward the degree and may result in termination of financial support. The Dissertation Committee may also advise the student to receive a terminal Master's degree.

F. Dissertation Defense

- (a) The dissertation defense committee will normally include the Dissertation Committee plus an outside examiner. There will be at least one tenured chemistry faculty member who is not the dissertation advisor. The committee will be chaired by a tenured chemistry faculty member who is not the dissertation advisor.

- (b) **Outside Examiner**

The Dean of the Graduate School, acting upon a recommendation from the Department, adds an outside examiner to the examination committee as the representative of the faculty of the Graduate School. The outside examiner is either a Binghamton faculty member from a related area outside the student's major program, department or division or someone from a related discipline outside the University. Normally, the outside examiner will have no involvement in the supervision of the student's dissertation. The outside examiner reads the dissertation and participates fully as a dissertation-examining committee member during the dissertation defense. The outside examiner's function on the examination committee is to render an independent judgment and to assure that the dissertation satisfies Graduate School standards.

At least one month prior to the defense, a graduate student, after a discussion with the dissertation advisor, should establish that the proposed outside examiner is willing to serve on the committee. The graduate student should then complete a Request for Approval of Nomination of Outside Examiner form which can be found on the Graduate School web site:

https://www.binghamton.edu/grad-school/docs-forms/outside_examiner_request.pdf.

The graduate student should obtain the signature of the Graduate Director on the form, submit the form to the Graduate School and provide the department office with a copy.

If the nominee is from another institution, the Graduate Director should forward the nominee's academic credentials, including a vita, to the Assistant Dean for Administration at the Graduate School to be evaluated. The program director should also include a brief statement (one paragraph) that explains the relevance of the nominee to the student's dissertation research topic and the nominee's experience in evaluating doctoral research (e.g., as outlined in the description above regarding criteria for appointment). The Dean then invites the nominee or another faculty member to serve as outside examiner. The nomination should be submitted to the Graduate School **no later than one month before the defense**.

- (c) For guidelines for preparing and submitting a thesis or dissertation, please visit the following Graduate School web site:
<https://www.binghamton.edu/grad-school/resources/policies-procedures/manual/index.html#thesis-or-dissertation>.
- (d) Copies of the dissertation must be delivered to the members of the dissertation defense committee at least *two weeks* before the defense.
- (e) The student should arrange for a date and time acceptable to committee members and reserve a room for the defense with the department secretary. The secretary will prepare a notice of the defense, send copies to all department faculty members, and give to the student to post in public places in the department.

G. Submission of the Dissertation to the Graduate School

The Student must turn in the final copy of the approved dissertation to the Graduate School no later than the end of the semester (Fall, Spring or Summer) in which the student defended, unless the Dissertation Committee specifies otherwise.

THE MS PROGRAM

Summary of Requirements

1. Four graduate courses (16 credits), at least three of which ordinarily are in chemistry, with the balance in related courses approved by the GPC.

Biological Chemistry emphasis: at least two courses in chemistry, and the remainder from the fields of biological sciences and other sciences (physics, computer science, geology, mathematics or engineering), as approved by the faculty advisor for individual student programs.

Materials Chemistry emphasis: at least two courses in chemistry, including Chemistry 544, and at least two courses from the fields of materials science and engineering, geology, physics, or engineering, as approved by the faculty advisor for individual student programs.

2. One semester of Chemistry 592 (Graduate Seminar).
 3. Two semesters of Chemistry 593 (Frontiers in Chemistry).
 4. Completion of an acceptable research thesis (Chem 599).
 5. Passing an oral examination on the subject of the research thesis. The thesis defense committee will consist of at least three faculty members, including at least one tenured chemistry faculty member who is not the thesis research advisor. The committee will be chaired by a tenured chemistry faculty member who is not the thesis research advisor. In interdisciplinary programs, one member may be from another department.
 6. A total of at least 30 graduate credits obtained under the above requirements.
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THE MA PROGRAM

Summary of Requirements

1. Six graduate courses (24 credits), at least four of which are in chemistry, the balance to be related courses approved by the GPC.
2. One semester of Chemistry 592 (Graduate Seminar).
3. Two semesters of Chemistry 593 (Frontiers in Chemistry).
4. Completion of an acceptable research project (at least four credits of Chem 597).
5. Public presentation of a seminar on the subject of the research project.
6. A total of at least 32 graduate credits obtained under the above requirements.

FAQs for Graduate Study in Chemistry

➤ **I have to be registered full-time because I am receiving a tuition scholarship. How many credits should I register for in order to be considered full-time?**

- If you entered with a Bachelor's degree, you must register for 12 credits for each of your first two semesters to be considered full-time. Earning 24 credits satisfies the residency requirement, and you then register for only nine credits a semester to be considered full-time. After you reach ABD status and are admitted to Ph.D. candidacy, you are considered full-time if you register for only one credit of dissertation research (Chemistry 699) each semester.
- If you entered with a Master's degree or have earned a Master's degree at Binghamton and are continuing for a Ph.D. degree, you should register for only nine credits a semester to be considered full-time. After you reach ABD status, you are considered full-time if you register for only one credit of dissertation research (Chemistry 699) each semester.

➤ **Under what circumstances should I register for Chemistry 597?**

- Chemistry 597 is used when you take a course to satisfy a placement requirement. It is also sometimes used for an Independent Study course to fill a schedule of 9 or 12 credits before you reach a Course Complete (CC) status. As defined by the graduate school at Binghamton University, to qualify for "CC" status, a graduate student must have completed all coursework required for the degree by the first day of classes of the semester in which the student is to be designated as "CC." Coursework can be considered complete only when a grade has been assigned for each course; coursework is not complete when the grade recorded is "Incomplete." For our graduate program this means that (i) the student has no outstanding placement deficiencies and (ii) all six major 4 credit special topic courses, CHEM 592, CHEM 591 (two semesters) are completed before the first day of classes of the semester in which the student is to be designated as "CC."

➤ **When do I register for Chemistry 698 or 699?**

- You can register for one credit of Chemistry 698 (Pre-Dissertation Research) once you met the residency requirement and you also reached CC status, but have not yet reached the ABD status. Once you reached ABD status, you register for one credit of Chemistry 699. Until that time you should register for Chemistry 698.
- In order to qualify for one credit of Chemistry 698 registration and yet be certified as full time for loan or visa purposes, the graduate school requires also following additional criteria to be met: The student's supervisor and program director must certify that the student is making a full-time investment in work toward their degree. Domestic PhD students must be within one academic year of ABD status. International PhD students must have reached CC-status.
- Ph.D. students may not register for Chemistry 699 until they have been admitted to candidacy and have thus reached an ABD status. For our graduate program reaching ABD status means that

(i) the student is already with a course complete (CC) status and then the student also (ii) passed in the following order the comprehensive literature review (CLR), the preliminary oral examination (OE), and submitted a dissertation prospectus approved by his/her committee. Finally, the ABD status needs to be approved by the Graduate School before the add/drop deadline of the semester in which the student is to be designated as "ABD."

- Chemistry 698 (Pre-Dissertation Research) and 699 (Dissertation Research) do not count toward the residency requirement of 24 credits, so graduate students should not register for them until the residency requirement is fulfilled. (The same applies to Chemistry 598 and 599 in a Master's program.)

➤ **Is attending Colloquium expected beyond Chemistry 593?**

- Yes. More specifically, 100 % attendance is mandatory for all non-ABD students, and 50 % attendance is expected from all ABD ones.

➤ **Should all students take graduate seminar (Chemistry 592) in the first year?**

- Yes

➤ **When should I take the comprehensive literature review (CLR) exam and the preliminary oral exam?**

- CLR exam: at the end of the first academic year or in the first semester of the second year;
- Preliminary Oral exam: After passing the CLR exam, the preliminary oral examination must be completed before the beginning of the fifth semester.

➤ **When is the dissertation prospectus due?**

- Within one (1) month of successful completion of the oral exam, or before the start of the next semester, whichever comes first.

Combined Awards (4 + 1) Programs in Chemistry

The 4+1 programs are designed for outstanding students who wish to combine a Bachelor of Science/Arts degree in Chemistry with a Masters degree in Chemistry. The combined program allows students who are interested in a Masters degree to complete two separate degrees in five years, saving time and tuition. This is achieved by completing graduate courses already in the senior year of undergraduate studies.

4+1 Programs in Chemistry offered at Binghamton University

- BA/BS Chemistry + MA/MS Chemistry
- BS Chemistry + MS Materials Science and Engineering

You should consider the 4+1 program if

- you are interested in a career in industry with experience and qualifications in addition to bachelor degree, but you do not want to commit to a PhD degree.
- you want to determine whether research, eventually pursuing a PhD degree, is the right career choice for you.
- you want to increase preparation for Medical School, for example to increase your GPA or to gain more experience.
- you want to achieve a career in teaching, for example in High School, for which Masters degrees make applicants more competitive.

How does it work?

- You start on a regular track to the Chemistry BS/BA degree for the first three years. In your junior year, you declare your interest in the 4+1 program to the Chemistry Department. The form for application can be found at the Chemistry department website (<https://www.binghamton.edu/chemistry/4-plus-1/application-form-4-1-program.pdf>). In your senior year (in late fall or early spring), you will **formally apply** for the program via **BUbrain**, choosing "Accelerated Degree Application for Admission". If accepted, you must confirm your intent to enroll in Slate (look for reminder emails about this!). Note: 4+1 students do not have to pay an enrollment deposit. Once you are accepted into the graduate program, and you have completed your Bachelor degree, you take graduate courses and perform graduate research in year five. The MA degree is the non-thesis option with more coursework, the MS degree requires submission and defense of a MS thesis. Sample course sequences will be available in the Undergraduate Student Handbook and on the Chemistry department website.

The importance of research for the MS track

- To complete the combined degree track within five years, it is important to begin undergraduate research (independent study) as soon as possible. In fact, experience in undergraduate research will be strongly recommended when you declare your interest in the program to the Chemistry

Department. To do that and to apply formally to the program find the downloadable application form at the Chemistry department website (<https://www.binghamton.edu/chemistry/4-plus-1/application-form-4-1-program.pdf>).

FAQs for 4 + 1 Programs in Chemistry

Junior Year

- **Do I need an advisor in the Chemistry department?**
 - Yes
- **For the 4+1 MS degree, should I be enrolled in independent study (research), with a project underway during my junior year?**
 - Ideally, yes. However, it is not mandatory.
- **How many courses should I have completed by the end of my junior year to be eligible?**
 - There is no exact requirement that defines eligibility as the progress to degree of each student often varies. At the same time we generally recommend for successful applicants to have complete most of the core courses in the undergraduate chemistry curriculum like Chemistry 107 & 108, 221, 231, 332, 341, 351 or 361, Mathematics 224 & 226, and Physics 131 & 132,. For students pursuing combined BS + either MA or MS degrees we recommend to have complete also Chemistry 422, 451, 455, and Inorganic Chemistry II (one of 442, 443, 444, 445, or 484).
- **Is there a process for "declaring interest" in the program during the junior year?**
 - Yes. There is a special application form that needs to be filled in and signed by the student and by the student's advisor.
- **What is the role of my advisor in this process? Should I have a letter from my advisor *during the junior year* that (a) attests to the student's qualifications (b) commits to serving as MS/MA advisor?**
 - The application process requires only an advisor from the Department of Chemistry to be chosen at the time of application and then the advisor to support the application by signing the form (<https://www.binghamton.edu/chemistry/4-plus-1/application-form-4-1-program.pdf>). No other formal letter is required at this point.

Senior Year

- **Can I start taking graduate level classes in Chemistry as a Senior?**
 - Undergraduate students who are within eight credits of graduation may register for up to two graduate-level courses and receive graduate credit, provided that the graduate courses are not used to fulfill an undergraduate degree requirement.
- **For the 4+1 MS degree, should I be enrolled in independent study (research), with a project underway during my senior year?**
 - In your senior year, for those pursuing an MS degree, yes, you should be enrolled in independent research with a faculty member in the Chemistry department.
- **How do I formally apply during my senior year?**
 - The formal application takes place at the end of the senior year but is highly recommended to apply by the end of the first semester of the senior year. The application is submitted to the Graduate School through the standard application means (please, refer to the guidelines for formal application for an MA or MS degree:
<https://www.binghamton.edu/apps/academics/program/gd/chemistry>).
- **What is the deadline for formally applying during my senior year?**
 - The deadline is the end of the senior year.
- **Is the GRE required?**
 - The only requirement is GPA of 3.2 or better. GRE is not required for Binghamton University Chemistry majors.
- **Are letters of recommendation required?**
 - Yes, two letters are required, one of which should be from the advisor.

1+ Year

- **Do I need to take the placement exams that PhD students take?**
 - Generally yes. However, BU students could receive a waiver(s) for each placement exam based on final grades of B or better in selected undergraduate courses from the chemistry curriculum (CHEM 221, CHEM 332, CHEM 341, CHEM 351 or 361).
- **Once in the program, how do I form a committee?**
 - It is a good idea to discuss first the committee membership with your advisor. Once you agree on the best membership, you will need to contact the faculty members you wish to serve on your committee and ask for their agreement. Please remember that the thesis defense committee should consist of at least three faculty members, including at least one tenured chemistry faculty member who is not your advisor. The committee will be chaired by a tenured chemistry faculty member who is not your advisor. In interdisciplinary programs, one member may be from another department.

➤ **When would I hand in and defend my thesis?**

- The thesis (for MS degree only) must be defended during a regular semester time (Fall, Spring, or Summer), preferably at least a week before the official dissertation submission deadline. Copies of the thesis must be delivered to the members of the thesis defense committee at least two weeks before the defense.

➤ **What happens if my thesis work is not complete by the end of the 1+ academic year?**

- Normally, students in such situation decide to register for one (or more) additional semester(s). Another option is to finish with a MA degree if all course requirements are met.

THE MAT(CHEMISTRY) PROGRAM

Summary of Requirements

1. All of the general MAT requirements determined by the Department of Teaching, Learning, and Educational Leadership (see University Bulletin).
2. A minimum of 12 credits of graduate level chemistry courses.

CHEMISTRY DEPARTMENT'S

GRIEVANCE PROCEDURE

FOR UNDERGRADUATE AND GRADUATE STUDENTS

The following grievance procedure is a two-stage process to resolve alleged unfair grading procedures or alleged unfair disciplinary actions taken by a faculty member against a student, or other matters not already addressed by existing grievance procedures (cf. Appendix). The first stage is comprised of several INFORMAL STEPS designed to reach mutual agreement between the parties. In the second stage, FORMAL STEPS are undertaken in which the complaint is considered by a GRIEVANCE COMMITTEE.

I. Informal:

- A. The grievant should attempt to find satisfaction first by discussing the matter with the faculty member involved.
- B. If no mutually agreeable resolution is reached during stage IA, the grievant may seek mediation through the Department Chair (or the Undergraduate or Graduate Director, who may serve as the Chair's designee). If the Chair or Chair's designee is the respondent, that is, the person against whom the grievance is directed, then to avoid a conflict of interest the Undergraduate or Graduate Director may serve as the mediating agent.
- C. When complaints and concerns are resolved through the informal process to the satisfaction of both the grievant and the respondent, any written materials that may have been part of mediation shall be destroyed. The department shall keep the original of any written agreement signed by both parties.

II. Formal:

A. Filing a Grievance:

* If the above-mentioned informal procedures do not result in a resolution, the grievant may file a formal written complaint, submitted to the Department Chair (or Undergraduate or Graduate Director if the Chair is respondent.)

* A formal complaint must be filed before the end of the semester following the semester during which the incident being grieved occurred. This time frame is in keeping with the university policy that "graded work not returned to students should be kept for one semester following the end of the course, to allow a means of evaluating the work of students who ask that a grade be reviewed." Summer and winter terms do not count as semesters.

* Within ten working days of the receipt of the written complaint, the Chair (or designee) will forward a copy of the formal complaint to the respondent(s), and may forward a copy to the Associate Dean for Academic Affairs (or Dean's designee). The Chair also forwards copies to the members of the Grievance Committee along with a request that they convene a meeting.

B. The Grievance Committee:

* The Grievance Committee shall be a departmental standing committee composed of four faculty and two students. The committee shall determine its chair.

* The Grievance Committee Chair will schedule the hearing within 30 working days from receipt of the complaint at a time which does not preclude the attendance of either party – save that the period between the end of the spring term and the beginning of the fall term shall not be counted and the first 15 working days of any semester shall not count toward the 30 days. Should either party be away from the University and out of the area throughout this period, the hearing may be postponed until a later date in the semester. Under exceptional circumstances, such as the absence of the grievant or respondent from campus for the full semester, either party may participate via teleconference or video conference.

* Parties will be provided at least five working days notice of the hearing date. If both parties waive this notice requirement, the hearing can be scheduled earlier.

C. The Hearing:

* The grievant and the respondent have the right to challenge the impartiality of any member of the committee. The other members of the committee shall decide by secret ballot whether that member shall be disqualified for that hearing. The grievant and the respondent have the right to bring one person (who is present in a non-participating capacity) to the hearing.

* A quorum shall consist of a majority of the members of the Grievance Committee with the proviso that at least one faculty and one student be present.

* Both parties shall be present during the hearing and may participate in Parts One and Two of the hearing. If either party is not present and there is reasonable doubt as to whether the notification of the hearing was received, the hearing should be postponed and a second notification should be made. At the beginning of the hearing the Chair should introduce all those in attendance, ask if anyone has questions about procedures, and assure both the grievant and respondent that each may participate at the hearing and that the hearing will not conclude until they are both satisfied that they have had ample opportunity to speak.

* The hearing shall consist of at least two parts:

1. The initial presentation of the grievance by the grievant followed by discussion focused on the grievance.
2. The presentation of the respondent's response to the grievance followed by discussion focused on clarifying the response.

* The Hearing should be audio recorded and written Minutes should be made with sufficient particularity to allow for review by the appeal agent. The Minutes will be released to the grievant and respondent involved in the case upon request, with the understanding that the Minutes will be treated confidentially.

D. Deliberations and Recommendation of the Grievance Committee:

* The deliberations of the Committee will take place after the hearing and shall be put in the form of a written recommendation to the Chair (or the Chair's designee if appropriate) of the department. The decision regarding the recommendation will be based on an open vote by all members of the Committee in attendance. The recommendation shall be based on a vote of the majority of the members present. Those members of the committee who do not concur with the majority decision have the right to append a minority report to the recommendations.

*In order to ensure a free and fair discussion, deliberations of the Committee will take place in closed session. No one other than Committee members shall be present during deliberations, and no new evidence may be introduced at that time. The Chair of the Committee shall provide the Department Chair a summary of the Committee recommendation and its rationale.

* Within five working days of the hearing the Committee Chair will send a written report of the Committee's recommendation to the Chair of the Department. The Department Chair will make his/her decision and within 10 working days after receipt of the Committee's recommendation, shall notify all parties, including the Associate Dean for Academic Affairs. This written decision will include a description of the appeal process.

* Within twenty working days of notification of an action at the department level either party may appeal to the Associate Dean for Academic Affairs (or Dean's designee), or in the case of a graduate student, to the Graduate Council Grievance Committee. (Graduate School Student Handbook). The Associate Dean may establish an ad hoc committee to hear the appeal. For undergraduate students the Associate Dean for Academic Affairs (or Dean's designee) shall serve as the second and final level of appeal. A student may appeal beyond the Dean to the Provost/Vice President for Academic Affairs if the appeal is based on due process. Under special circumstances the Dean may serve as the first level of appeal.

APPENDIX

Categories of Grievances at Binghamton

I. NON-ACADEMIC:

“The University conduct system handles charges brought against any University student or student organization for alleged infractions of the *Code of Student Conduct*. In addressing charges, it is the responsibility of the hearing body to determine whether the alleged behavior constitutes a violation of the *Code of Student Conduct*... Allegations of misconduct must be submitted in writing to the appropriate administrative office (community administrator for residential life cases, director of the Office of Student Conduct for other cases). Sufficient information is required to support an allegation of misconduct before the request for charges is accepted.” [Code of Student Conduct, Section IV, “Code of Student Conduct Procedures.”]

II. CONTRACTUAL:

Faculty/Professional and Classified Staff Grievances: All Union agreements provide the procedure for grieving disputes concerning the interpretation, application or claimed violation of a specific term or provision of the contract, as well as for a claim of unjust discipline.

III. DISCRIMINATION:

Binghamton University has adopted the discrimination complaint procedure established by the State University of New York for "investigation and resolution of allegations of unlawful discrimination on the basis of race, color, national origin, religion, age, sex, disability, marital status, or sexual orientation." The Affirmative Action office handles these complaints. Initial claims of discrimination may be handled in the department. However, formal charges of discrimination should be directed to the Affirmative Action Office. [SUNY Discrimination Complaint Procedure, Document 6501.]

IV. ACADEMIC:

- A. Academic Dishonesty: The University’s academic honesty policy is articulated in the Student Academic Honesty Code, which is printed in the *University Bulletin*. This code is implemented and enforced by the Colleges. The Harpur College Academic Honesty Committee oversees academic honesty procedures, as well as the investigation of honesty infractions in Harpur College courses.
- B. Professional Standards Committee: This Faculty Senate Committee is charged to: “1) in cases which are not matters of grievance or discipline under provisions of the Collective Bargaining Agreement, to consider all sides of issues involving professional conduct, and to seek a resolution or to recommend appropriate action to assure high standards of professional conduct” [Faculty By-Laws, Appendix, Title B]
- C. Student Discipline Inside the Class: “Any instructor may exclude from attendance any student who, in the instructor's judgment, has seriously impaired the class's ability to achieve the objectives of the course. On the other hand, disciplinary action by a faculty member that the student considers arbitrary or unjust may be appealed. Schools and departments have established procedures for student grievances.” [Faculty-Staff Handbook, Article VII, Title B, “Student and Classroom Discipline.”]
- D. Complaints Concerning Grades: “If a student has a complaint about a grade or other academic grievance, the first step is to talk to the instructor involved. If the matter is not settled satisfactorily, the student should contact the department chair or division director about the complaint and submit the complaint through the formal grievance procedure established by the department. The department decision may, if the student still feels aggrieved, be appealed to the appropriate dean.” [Faculty-Staff Handbook, Article VII, Title C.11.]