Graduate Student Regulations
MS and PhD Programs

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These regulations apply to students who choose to continue the pre-2017 graduate degree requirements. Please see the updated graduate regulations for 2017 and beyond.
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1. General Information

Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Chemistry or Biochemistry and Molecular Biology can be earned by graduate students in the Department of Chemistry and Biochemistry (hereinafter abbreviated C&B). Major areas of specialization are: analytical chemistry, inorganic chemistry, organic chemistry, physical chemistry, biochemistry and molecular biology. Other curricula, such as materials chemistry or chemical physics can be arranged within one of these specializations. The purpose of this document is to present the academic and research requirements as well as the procedural regulations of the NDSU Graduate School and the Department of C&B for MS and PhD degrees in Chemistry and in Biochemistry and Molecular Biology.

Student progress toward the MS or PhD Degree in either Chemistry, or Biochemistry and Molecular Biology is monitored throughout the student's tenure by the Department of C&B’s Graduate Student Progress Committee (hereinafter designated GSPC). The GSPC functions as the Graduate Program Supervisory Committee until a student's Advisory and Examination (A&E) Committee has been established and approved by the Dean of the Graduate School. The GSPC comprises one representative from each major area of study in the Department of C&B. The GSPC will notify students annually of their status with regard to the degree requirements in an effort to help them stay on the appropriate time line, which is set forth herein and summarized in sections 20 and 21.
Deviation from the regulations set forth in this document may be requested by the graduate student via a written petition to the Department Chair, with a copy to the GSPC Chair. If an A&E Committee has been approved by the Graduate Dean, the petition should first be discussed at a meeting of the student’s A&E Committee, and a recommendation from the Chair of that Committee should also be sent to the Department Chair.

2. Admission Classifications for Graduate Students

Graduate students may be admitted under one of the following classifications:

- **Full Graduate Standing.** These students have met the admission requirements for both the Department and the Graduate School.
- **Conditional Graduate Standing.** These students do not meet all admission requirements (e.g. undergraduate GPA of 3.0), but they show potential for successful graduate study.

A student who is admitted with conditional graduate standing should apply for reclassification before the twelfth graduate credit is earned. Students should refer to the Graduate School web site for the reclassification form. A student can neither have a program of study approved, nor become a candidate for a graduate degree until they have achieved full graduate standing. Eligibility for graduate assistantships will be determined by the Department, contingent upon approval by the Dean of the Graduate School.

3. Scholarship Standards for NDSU Graduate Students

In fulfilling graduate course requirements on any Plan of Study, only grades of A, B, or C are acceptable. For Master's Thesis (798) or Doctoral Dissertation (799), which are evaluated as "Satisfactory" (S) or "Unsatisfactory" (U), only the grade of S is acceptable. For Seminar (790), only grades of A, B, C, or S are acceptable for graduate credit.

All courses evaluated by the grades A, B, C, D, or F are used in calculating the grade point average (GPA.) If a course has been repeated, both grades will appear on the transcript, but only the second grade will be used in calculation of the GPA. A specific course can be retaken only once, and a maximum of three courses may be retaken.

While some graduate courses may count for graduate credit with a grade of C, more than two grades of C or below may be grounds for dismissal from the program if the students A&E Committee and the Department Chair are in agreement.

In order to maintain **Good Graduate Standing** and to receive a graduate degree, a student must maintain a cumulative GPA of at least 3.0.

Any student in **Good Graduate Standing** whose cumulative GPA drops to less than 3.0 at any time during their tenure is automatically placed on academic warning. Any student admitted with **Conditional Graduate Standing** because of a GPA deficiency is subject to dismissal from the program if their first-semester GPA is less than 3.0. A student on academic warning who fails to achieve a cumulative GPA of at least 3.0 by the end of the subsequent semester of enrollment will be placed on academic probation.

A student on academic probation may not continue in their graduate degree program without a waiver from the Dean of the Graduate School, pursuant to a recommendation from the Department Chair. This recommendation must include a review of the student's status and a proposed recovery plan that will assist in the student’s return to **Good Graduate Standing** within
the following semester. If the cumulative GPA is not at least 3.0 after an additional semester, the
student in question will be dismissed from the graduate program.

A student on academic probation is ineligible for the tuition waiver and may be ineligible for
a graduate assistantship. International students should be advised that loss of their assistantship
may impact their U.S. Visa status.

4. Academic Evaluation Test and Initial Academic Advising
During the week preceding registration, all new graduate students are required to take an
Academic Evaluation Test (AET) covering undergraduate subject material in Analytical,
Inorganic, Organic, and Physical Chemistry, as well as in Biochemistry and Molecular Biology
(a total of six subject sections). These examinations will be written by the faculty and consist of
twenty (20) multiple choice questions for each subject section. The exams are written such that
students with a reasonable command of skills and concepts presented in a typical undergraduate
chemistry and biochemistry curriculum should have little difficulty passing them. The results of
these examinations will be used in conjunction with other information concerning the student's
background to assess any deficiencies in their chemical and biochemical knowledge base. A
copy of those results will be placed in the student's file. Any student holding a Masters degree
from an American or Canadian University may be excused from the AET based on graduate
course work in these areas. Requests for such special consideration must be submitted in writing
to the Department Chair with a copy to the GSPC Chair.

Students are required to pass three (3) of six (6) subject sections of the AET with scores of
≥70% by the end of the first academic year (second semester). One of the three sections must be
outside the student’s primary discipline. In other words, chemistry students must pass either the
biochemistry or the molecular biology AET whereas the biochemistry/molecular biology
students must pass one of the four chemistry AETs. The AET will be administered by the GSPC
three times during the academic year (August, January and May). Students may attempt to satisfy
this requirement any time during the first academic year when the AET is offered. Receiving a
grade of at least a B in the following courses will also satisfy as a pass of the corresponding AET
subject:

<table>
<thead>
<tr>
<th>AET Subject</th>
<th>Course Number</th>
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<th>Course Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic Chemistry</td>
<td>CHEM 341</td>
<td>Physical Chemistry</td>
<td>BIOC 665</td>
</tr>
<tr>
<td>Inorganic Chemistry</td>
<td>CHEM 625</td>
<td>Biochemistry</td>
<td>BIOC 660 or 701</td>
</tr>
<tr>
<td>Analytical Chemistry</td>
<td>CHEM 632</td>
<td>Molecular Biology</td>
<td>BIOC 674</td>
</tr>
</tbody>
</table>

Failure to pass three of six sections (vide supra) by the end of the second semester will result
in the GSPC defining this as a deficiency and adjusting the student’s Plan of Study accordingly.

Prior to registering for the first semester of courses, the new student will meet with the
Graduate Student Progress Committee. The GSPC will recommend a program of study for the
first academic year based upon:
• performance on the Academic Evaluation Test,
• previous academic record, and
• a personal interview with the student.
The GSPC may recommend that a student register for an undergraduate course, either as an unregistered audit, or for credit. If an unregistered audit is recommended, then the student will be required to:

- attend lectures regularly,
- take all examinations in the course, and
- earn a grade of at least B for the course.

A memo from the instructor indicating the student's final letter grade will be placed in the student's file.

In the case of an equivocal deficiency, other approaches are possible. For example, the student could either enroll in a graduate course in their area of deficiency and earn a grade of B or better, or test out of the course. As such methods are considerably more demanding on the first-year graduate student, they are seldom recommended. In any case, an alternate approach to removing deficiencies does not supplant the requirement to pass the AET (vide supra).

While it is desirable to remove deficiencies during the first year of graduate study, scheduling of certain courses may require that the time be extended to a second year. The assessment of whether or not a student has in fact removed a deficiency must be discussed at the student’s first A&E Committee meeting and underscores the importance of such meetings. It is the responsibility of this Committee to decide whether deficiencies have been removed, and it is their prerogative to postpone conferral of a degree if all deficiencies have not been removed.

Students must recognize that graduate courses are taught with the assumption that all those enrolled have the appropriate background to succeed in the course. Any student who enrolls in a graduate course for which the prerequisite overlaps with one or more demonstrated, unresolved deficiencies should understand that it is their responsibility to gain command of the requisite background concepts such that they can keep up with the course.

5. Credit Load

Under North Dakota State Board of Higher Education policy, a nine-credit academic schedule is considered to be a full-time load for graduate students who do not hold assistantships. Students holding a normal, $\frac{1}{2}$-full-time equivalent (FTE) teaching or research assistantship and carrying five or more credits are considered full-time students. Graduate teaching and research assistants on these regular appointments should register every semester, including the summer session, for a minimum of five credits comprising didactic courses, research, and seminar. Graduate assistants on other percentage appointments would adjust their academic load accordingly. Graduate Assistants wishing to register for more than ten academic credits in a regular semester shall secure the approval of the Department Chair, and the Graduate Dean before registering.

For international students to maintain proper immigration status, six credits are required if the student holds a $\frac{1}{2}$-FTE assistantship. Only when all courses are completed may international students register for fewer than six research credits to maintain proper immigration status.

6. Thesis Advisor and the Advisory and Examination Committee

Graduate students should choose a major advisor by the end of the first semester of enrollment, and convey this decision in writing to the Department Chair (see the Appendix for further
details), with a copy to the GSPC Chair. In making this decision, the student is responsible for becoming familiar with the research interests of the various faculty members.

Before the end of the second semester of enrollment, the student, in consultation with his or her major advisor, will establish an Advisory and Examination (A&E) Committee. Until such time, the Graduate Student Progress Committee will fulfill the advisory role. The A&E Committee will be responsible for advising the student in preparing a Plan of Study, reviewing the student’s progress at least annually, and administering the comprehensive and other oral examinations.

The A&E Committee will consist of at least three members of the NDSU graduate faculty. The major advisor will serve as the chair of the student's A&E Committee. The major advisor and student shall agree upon three additional Committee members:

- one from the student's area of specialization, typically from C&B
- a second from the Department of C&B, and
- one from outside the Department of C&B, subject to approval by the Graduate Dean.

Additional committee members having expertise in the student’s research area may also be appointed. These additional members may not necessarily be NDSU graduate faculty.

The A&E Committee, agreed upon by the thesis advisor and student and approved by the Department Chair and the academic (College of Science and Mathematics) Dean, shall be recommended to the Dean of the Graduate School for approval and formal appointment. Once the Committee has been constituted, each member shall have an equal voice in Committee recommendations and equal vote in Committee decisions.

7. **Annual Meetings and Progress in MS and PhD Programs**

The A&E Committee will meet with and evaluate the student’s progress annually on the basis of the following criteria:

- removal of academic deficiencies,
- maintenance of a 3.0 overall GPA as specified by the Graduate School Regulations,
- performance on the written comprehensive examination,
- performance on the oral comprehensive examination,
- progress toward completion of the Plan of Study,
- progress in thesis research, and
- performance in and attendance at departmental seminars.

The first A&E Committee meeting must be held before the end of the second semester in residence. This meeting should set up a plan to address any remaining areas identified as deficiencies that were identified by the initial AET and approve the student's Plan of Study. The student must convene a meeting of the A&E Committee at least once each year throughout his or her tenure as a graduate student. Refer to the Appendix for further information.

On the basis of subsequent annual meetings, the A&E Committee will communicate one of the following recommendations to the student:

- If academic and research progress have been satisfactory, continue toward an advanced degree in the present program of study.
- If the student has embarked on a PhD program and progress has been marginal in one or more respects, the Committee may request that the student complete the requirements for the MS degree before continuing.
• If progress has been unsatisfactory in the chosen degree program, the Committee may recommend termination of the student's Plan of Study.

The Chair of the A&E Committee will report the results of the Committee's deliberations using a form available in Department offices.

After being placed in the PhD track, any student who fails to pass both the written and oral parts of the comprehensive examination will be transferred into the MS track. In this scenario, the student's program of study terminates with a MS Degree.

Any student in the MS track (due to either the student's original selection of this degree program, or to action of the A&E Committee) may, upon successful completion of the MS degree, and with the approval of the student’s A&E Committee and the Department Chair, enter or re-enter the PhD track. All graduate level courses, and the AET, will count towards the PhD Program. Any student receiving a master's degree in the Department and continuing on for a PhD must meet the AET requirement by the end of the second semester after entering the PhD track. The student must pass both the written and oral components of the comprehensive exam (vide infra) by the end of the sixth semester after entering the PhD track.

Any decision made by the student's A&E Committee may be appealed first to the Department Chair, who will consult with the Graduate Student Progress Committee. If the student feels that fairness has not been served by this first appeal, a second appeal may be made to the Dean of the Graduate School.

The GSPC will periodically review the files of all graduate students and inform the Department Chair of students who are not in compliance with graduate regulations (vide infra). The chair of the Department of C&B will issue a warning and give the student one semester to bring themselves into compliance. If the student’s lack of compliance remains at the end of that semester, then the student’s assistantship will be reduced to $\frac{1}{4}$ FTE. If at the end of the next semester the deficiency remains, then the student’s stipend will be withdrawn. This policy applies to the following regulations: (i) annual A&E Committee meetings, (ii) Plan of Study, (iii) required seminars, (iv) mini-proposals, (v) written comprehensive examination and (vi) Defense of an Original Proposal (Oral Comprehensive Exam). International students should be advised that reduction and/or loss of stipend may impact their U.S. Visa status.

8. Plan of Study

The graduate student, in consultation with their A&E Committee, must file a Plan of Study with the Graduate School before the end of the second semester in residence. If for any reason the student is ineligible to file a Plan of Study with the Graduate School (e.g., the student has been placed on probation), the student must file an unofficial Plan of Study with the GSPC.

The Plan of Study shall be appropriate to meet the interest and needs of the student’s chosen field, as determined by the A&E Committee and approved by the Department Chair and the Dean of the Graduate School. The Plan of Study becomes official only after all approvals have been made.

A maximum of 12 credits may be transferred from another institution via the petition process into a student’s Plan of Study. The Graduate School specifies that all transfer credits must: (i) have been earned from a U.S. or Canadian institution that is accredited to offer graduate courses and degrees (credits from international institutions are transferable only after examination and approval by the A&E Committee, the GSPC and the Department Chair), (ii) carry grades of A or
B, (iii) have been earned within a ten year period at the time of the final examination, (iv) be clearly graduate level (credit from courses listed in both graduate and undergraduate curricula are not transferable), (v) not be from continuing education, correspondence, extension, or workshop courses, (vi) not be from internship, individual study, special problem, or research disquisition courses, or courses graded pass/fail or Satisfactory/Unsatisfactory, (vii) not have been used to fulfill the requirements of a baccalaureate degree, (viii) be verified by an official transcript, and (ix) not be used in calculation of the NDSU graduate grade point average.

The Plan of Study may be revised as necessary. Revisions must follow the same approval process as the original Plan of Study.

9. Course Requirements

Although the C&B Department offers separate Masters and PhD degrees in chemistry and in biochemistry and molecular biology, students should recognize that subjects are divided into five major areas (Analytical, Inorganic, Organic, Physical, and Biochemistry and Molecular Biology). Upon graduation the student is generally categorized as an analytical, inorganic chemist or biochemistry and molecular biologist, etc. Appropriate minors may be in other departments within the University. Special curricula (such as Geo C&B, Chemical Physics, Materials C&B) can be arranged.

Candidates for the PhD degree are required to earn at least 90 semester credits, which can include credits for seminar and research. No fewer than 27 of these 90 semester credits shall be earned in courses carrying graduate credit (courses numbered 601 to 789), and of these 27 credits, a minimum of 20 must be from courses numbered 701 to 789. Of these 20 credits, the requirement for "distribution" or "core" courses is 8 total credits in at least two fields of study other than the major area, selected from:

- Analytical Chemistry
- Inorganic Chemistry
- Organic Chemistry
- Physical Chemistry
- Biochemistry & Molecular Biology
- Materials & Nanotechnology
- Coatings and Polymeric Materials
- Veterinary and Microbiology
- Other related area (e.g. Physics, Math, Pharmacy, Engineering, Zoology)

As part of total semester credits, the following departmental courses are required of all students (Ph.D. and M.S.):

- Chem 720: Introduction to Chemical Research (2 credits)
- Chem or Bioc 790: Seminar (second year seminar, 1 credit)
- Bioc 720: Scientific Integrity (1 credit)
- Chem or Bioc 790: Seminar (defense seminar, 1 credit)

For students in the Ph.D. track, the following course is also required:

- Chem or Bioc 790: Seminar (proposal seminar, 1 credit)
Candidates for the MS degree are required to earn at least 30 semester credits, which can include credits for thesis research and seminar. No fewer than 16 of these shall be courses carrying graduate credit (courses numbered 601 to 789), and of these 16 credits, a minimum of 10 must be from courses numbered 701 to 789. The number of research credits (798) applied to the MS degree must equal at least 6, but cannot exceed 10 credits.

A student matriculating with a Master's degree, including one earned at an international institution, must earn not fewer than 60 graduate credits at NDSU. Of these credits, not fewer than 15 credits must be NDSU courses numbered from 701 to 789. Courses numbered 601-689 may be used for the Plan of Study as long as they have not been taken in an undergraduate or previous graduate program. Approved courses are Department of C&B 625, 626, 627, 628 and 630.

10. Departmental Seminars
A minimum of two departmental seminar presentations is required for the MS Degree. The first seminar is typically delivered during the third semester in residence. The seminar shall be based on the refereed literature on a topic that is typically relevant to the student’s research. The second seminar is the thesis seminar, which is typically delivered just prior to the final thesis defense. The thesis seminar shall be a presentation of the student’s research. See the Appendix for additional information.

Candidates for the PhD degree are required to give at least one seminar in addition to those required of a MS candidate. That seminar is the public presentation of the original research proposal (vide infra).

Each student must enroll in Graduate Seminar (CHEM 790) for the semester in which his/her seminar will be presented. Students who leave NDSU prior to completing their thesis or dissertation must register for Graduate Seminar in the semester of their defense and present their final seminar in order to have their thesis defense paperwork processed.

A copy of each seminar notice must be submitted by the student to the Departmental Administrative Assistant, and to the GSPC Chair, at least one week prior to presentation of the seminar. The thesis seminar is a proud event for both the student and the Department. As such, it should be scheduled during a “normal” seminar time to facilitate the largest possible attendance of Department members and guests. For example, Monday, Tuesday or Thursday afternoons in Dunbar 152 would be appropriate. An afternoon thesis seminar will typically require scheduling the final thesis defense on the following day.

Seminars play an important role in graduate education. Hence, regardless of whether the student is enrolled in Graduate Seminar, attendance at all departmental seminars is expected.

11. Written Comprehensive Examinations
Candidates for degrees are required to write comprehensive examinations, which will be administered two times during the academic year (May and December). Each time there will be one examination from each of the following five topic areas:

- Analytical Chemistry
- Inorganic Chemistry
- Organic Chemistry
- Physical Chemistry
- Biochemistry and Molecular Biology
The written comprehensive examinations are meant to evaluate the student’s mastery of the “core” classes for their respective discipline. The following table identifies the course numbers from which questions on the written comprehensive examination will be constructed.

<table>
<thead>
<tr>
<th>Division</th>
<th>Course Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical</td>
<td>632, 730, 732, 736</td>
</tr>
<tr>
<td>Biochem. &amp; Mol. Biology</td>
<td>673, 674, 701, 702</td>
</tr>
<tr>
<td>Inorganic</td>
<td>724, 725, 727, 728, 744</td>
</tr>
<tr>
<td>Organic</td>
<td>741, 742, 744, 745</td>
</tr>
<tr>
<td>Physical</td>
<td>BIOC 665, CHEM 760, 763, 764</td>
</tr>
</tbody>
</table>

Written comprehensive examinations must be taken by the summer following the end of the 4th semester (second academic year) in residence. Graduate students who enter the Department of C&B with a MS Degree from a U.S. or Canadian University must pass the full written comprehensive exam and will follow this same timeline. Students that enter the program in January (i.e. Spring admission) must take the exam by June following the end of the 5th semester.

Any student is allowed to take the comprehensive exam a year early, providing that the necessary core classes have been completed by the standard June date of the exam. It should be noted that such an early attempt only moves the exam timeline and does not provide an additional attempt to pass the exam. Students wishing to take the exam early must notify the GSPC of this at least four weeks prior to the exam date.

The exams will be administered during two consecutive days and both days of the exam will comprise conceptual questions to test student understanding of the subject/discipline. The first day of the exam will be comprised of questions that will focus on basic knowledge. The second day of the exam will be comprised of questions that probe concepts at a higher level and require more analysis and synthesis of ideas. The exams will be written and graded collectively by the professors within the selected discipline.

Students in a Masters track must pass the first day of questions with a total score of ≥70%. Students in the PhD track must pass the full exam (both days) with an overall score of ≥70% to remain in Good Graduate Standing. The exam results will be provided to the student in writing within one month of the exam date.

If the written comprehensive examination is not passed on the first attempt, the student is allowed a second attempt, which must be completed by end of the fall semester directly following the initial attempt. In the event of a second failure, the A&E Committee has the authority to terminate the degree program for a student on a MS track. If the student is on a PhD track, the Committee will either redirect the student to the MS track, or terminate their degree program.

12. Defense of an Original Proposal (Oral Component of the Comprehensive Exam)
In order to be granted candidacy for the PhD Degree in the Department of C&B, students must successfully defend an original, written research proposal. The topic of this proposal must be outside the research specialty of the student and the student’s PhD mentor.

Written summaries of at least two proposal topics ("mini-proposals") shall be submitted to the student's A&E Committee by no later than the end of the fifth semester of enrollment. (For a student entering with a MS degree, the mini-proposals should be submitted before the end of the third semester in residence.) The Committee will judge the acceptability of the mini-proposals following a presentation of the ideas in an A&E Committee meeting. The candidate will then prepare a full written proposal on the chosen topic and present it to their A&E Committee in the following semester (i.e., the second semester of the third year in residence, or of the second year of residence may be appropriate for a student entering with a MS degree). The written proposal will be distributed to their Committee at least one week prior to the scheduled date of the oral defense.

At least two weeks prior to the proposal defense, the student must file a request to schedule the Candidacy Exam with the Graduate School and obtain the Candidacy Exam Form for A&E Committee members to sign. The oral defense may not be scheduled prior to passing the written comprehensive examination, but must be completed successfully at least eight months prior to the defense of the thesis. The proposal defense will be administered by the student's A&E Committee and will be open to any other faculty members who are requested or who wish to attend. Guest examiners will be considered temporary, non-voting members of the A&E Committee at this oral exam. If the defense is successful, a copy of the signed Graduate School form will be placed in the student's file.

The Committee’s recommendation with regard to the student’s candidacy for the PhD degree will depend on its overall perception of the student’s performance in the proposal defense. That evaluation is based on three general criteria:

• the depth of development of the proposal,
• the quality of the written document,
• the student’s theoretical and working knowledge of fundamental chemical and physical principles, as evinced by the student’s ability to discuss them in the oral examination, typically although not necessarily, in some connection with the research proposal.

Failure to pass the oral comprehensive examination will normally lead to a recommendation that the student not be admitted to candidacy for the PhD degree. The opportunity to earn a Master of Science Degree will typically be afforded the student in this circumstance. The Committee is empowered to take other actions, if it feels they are warranted. For example, the Committee may impose additional requirements or may require a reexamination on the same or a different topic.

Proposal Guidelines: Key elements of any good proposal are the significance, scope and originality of the proposed research, the logical construction of the research plan, and the relationship of the research to what is already known. Common shortcomings of research proposals include choice of a topic that differs only slightly from work already published in the refereed literature. Such "derivative work" is generally considered to be of marginal importance, especially if the overarching problem is already considered solved. If the student chooses a topic about which much is already known, it is imperative that (i) the worth and unique features of the proposed project be emphasized and (2) a compelling case be made for the likelihood that new, worthwhile information will result.
Drafting of a research proposal is usually most efficient and effective when the scientific method is used. In general, the proposal begins with a statement of the observation upon which the proposal is based and/or the problem that the proposal will address. Then the significance and technical background for the proposed research is articulated. At this point, a hypothesis based on the first two sections is constructed. The experimental approach to testing the hypothesis is then briefly described in the form of aims or goals of the proposed work. Finally, the research plan describes the course of experiments and how the results will be interpreted in the context of the hypothesis. A good research plan recognizes potential pitfalls of the proposed experiments, including the possibility that the results may be different than expected, and sets forth contingencies for those eventualities. The proposal document shall be presented in the format of an ACS-PRF Type AC, an NIH-R01, or an NSF investigator-initiated grant proposal, including a project budget. See the Appendix of this document for further information.

13. Residency Requirement

The NDSU Department of C&B will not award any graduate degree without at least one academic year of full-time enrollment. The requirement may be met by residence at the institution for two semesters on a full-time basis. Part-time students earn residence in proportion to the number of credits earned.

Advanced degrees in C&B are research intensive. The research components of both the Master's and Doctoral programs constitute the most singular requirement for graduate degrees. All thesis research must be performed under the close supervision of a member of the graduate faculty (or an approved adjunct faculty member) of the Department of C&B.

It is most desirable that the major portion of the thesis research be performed while the student is in residence on the NDSU campus. A reasonable exception to this policy would involve the necessity to use instrumentation or facilities that are unavailable on the NDSU campus.

If the student is performing research for an employer other than the NDSU Department of C&B, and a portion of that research is to be applied to fulfill the thesis requirement, then it is the responsibility of the student’s A&E Committee to decide whether that research meets the standards and requirements established for the C&B Degrees. This decision will usually require a delineation of the student's responsibilities to their thesis advisor. This delineation of responsibility should be worked out to the satisfaction of the student’s A&E Committee during the first meeting.

14. Time Limitations

All requirements for the MS Degree must be completed within a period of seven (7) consecutive years. Graduate credit for any course work that was completed more than seven calendar years prior to the time of the final defense will no longer satisfy degree requirements.

All requirements for the PhD degree must be completed within a period of ten (10) consecutive years. Graduate credit for any course work, not included in a master’s degree, which was completed more than ten calendar years prior to the time of the final defense will no longer satisfy degree requirements.

15. Teaching
The Department of C&B regards the role of Teaching Assistant (TA) as crucial to its undergraduate teaching mission. The Department relies on Teaching Assistants for the smooth functioning of laboratory sections. Typically there is close contact between the TA and students in the laboratory. This means that the student's impression of C&B in general, and the NDSU Department of C&B in particular, may stem from that contact. It is important that the experience be a positive one.

To that end, new TAs are required to attend teaching sessions during the week before classes begin. Teaching Assistants coordinate with the faculty instructor of record through weekly planning sessions.

Student evaluations are collected for every laboratory section. The process is usually organized by the supervising faculty member.

16. Outside Employment
Most graduate students make a full-time commitment to their programs of study. Students who receive a teaching assistantship are expected to devote full time to teaching, academic course work, and research. Students failing to fulfill these three obligations may lose their assistantship.

17. Research Credits and Continuous Enrollment
When doing research requiring or utilizing faculty direction or consultation and/or the use of University facilities, students must be registered for research credits during each semester and summer session. In the summer session, students should register for a minimum of six semester credits.

Students who are conducting research for their disquisition are to be enrolled in either Chemistry 798 (Master's Thesis), or Chemistry 799 (Doctoral Dissertation) for the number of credits specified on their Plan of Study. Research includes literature reviews and writing of the disquisition. Should additional time be needed to complete the research after having already taken the number of disquisition credits specified in the Plan of Study, the student must register for either Chemistry 798-R, or Chemistry 799-R, respectively. Registration is required every semester, even if the student is in absentia, until the final copies of the dissertation have been received and accepted by the Graduate School.

Students who have completed all portions of their Plan of Study (including written examinations, if given) except for their disquisition are expected to maintain continuous enrollment until degree requirements are completed. If continuous enrollment has not been maintained, the Graduate School will not schedule a final examination until the student has registered for the appropriate number of credit hours for the intervening period following the last enrollment. The number of credits is determined by the Graduate Dean after consultation with the student and will amount to no less than one credit for each term not registered.

Students who must interrupt their research may obtain a leave of absence from the Graduate School which would exempt them from continuous enrollment. Prior to returning to the University, the student shall notify the Graduate School, which will restore the student's classification to active status. Students who move out of state may maintain their North Dakota
residence status for a period of 12 months, after which it is assumed that out-of-state status applies. Clarification of status may be obtained by consulting the University Registrar.

Students who have been absent from the University for two consecutive years without having been granted a leave of absence must reapply for admission to the Graduate School.

18. **Final Dissertation Defense (Oral Examination) and Submittal**

A Thesis or Dissertation (Disquisition) is required in both MS and PhD programs. It must show originality and demonstrate the student's capacity for independent research. It must embody research results that constitute a substantive contribution to scientific knowledge.

Permission to schedule the examination must be requested by filing the Request to Schedule Final Examination form with the Graduate School. The request to schedule must be sent to the Graduate School two weeks prior to the examination. Also, the student must personally meet with the Registrar to verify that all courses on the Plan of Study have been completed, and that the required grade point average has been attained. The Request to Schedule Examination must be signed by the student, the advisor, the Chair of the Department, and the Dean of the College prior to being filed in the Graduate School office. The graduate Dean will formally notify all members of the A&E Committee and the student when the request to schedule the Final Examination has been approved.

Care should be taken by the student to schedule the examination with all committee members. The notification by the Graduate School will confirm this scheduled examination.

The disquisition, in accord with the Graduate School's *Guidelines for the Preparation of Dissertations, Theses and Papers* (http://www.ndsu.edu/gradschool/current_students/dissertations_theses_and_papers/guidelines/) and in a nearly final form, must be submitted to the Committee no less than seven days prior to the examination. If this stipulation cannot be met, the student must either have the approval of the A&E Committee to proceed with the scheduled examination, or reschedule the exam. The final examination should be scheduled at least two weeks before the date of the university graduation exercises. At the conclusion of the final examination, the A&E Committee shall record in writing whether or not it approves the disquisition. This form should be filed with the Graduate School within seven days of the exam.

A negative vote by more than one member of the student's A&E Committee will signify failure of the final examination. If the report of the A&E Committee recommends failure, the student may repeat the examination with approval of the majority of the Committee. The second attempt must be made before the end of the term following the failure. Exceptions to this time limit will be considered by the graduate Dean upon presentation of written justification from the A&E Committee.

Should the examination be failed twice, the student will not be given a third examination except by recommendation of the A&E Committee, Department Chair, and special approval of the Graduate Dean, following consultation with the NDSU Graduate Council.

After the disquisition has been approved by the major Advisor and the A&E Committee, the student should bring one draft, on regular paper, to the Graduate School to be approved for format and style. Only after that approval has been received, should all six copies, on the proper paper (five of the six copies on acid-free paper), be made for binding. These completed and approved copies are to be presented, unbound, at the Graduate School office, along with a receipt
from the Business Office for binding fees. The University Library receives two bound copies, the Department of C&B receives one, the Advisor receives one, and the student keep one for a total of five bound copies of the disquisition. The sixth copy is sent to a microfiche service. See the Graduate School web site for further details (http://www.ndsu.edu/gradschool/current_students).

Submission of the disquisition in approved form and in the appropriate number of copies to the Graduate School constitutes the final requirement, which must be satisfied prior to the awarding of the degree. The student will have a maximum of one year following the final examination to deposit the disquisition with the Graduate School to completion the degree requirements. Should the disquisition not be submitted as specified, the student must repeat the final examination.

Students must meet check-out requirements prior to departure from campus or the final defense, whichever is later. Building and laboratory keys should be returned to the Department of C&B stockroom. Proper disposal of all research chemicals is the responsibility of the student, in consultation with the major Advisor. If there are hazardous chemicals that will not be used by other researchers in the group, then arrangements for disposal must be made with the campus Safety Officer. All Library books should be returned. The check-out form (see the Appendix) must be signed by the student, Major Advisor, Stockroom Supervisor, OSL Manager and C&B Librarian. This form must be on file before the Department Chair will sign the disquisition approval page.

The ability to communicate research findings to a community of peers is an important outcome of graduate education. To that end, students in the PhD track are expected to have at least one manuscript accepted for publication in a peer-reviewed journal by the time they defend their thesis. In the event that the manuscript is either declined, or accepted with revisions, the student must present a strategy for publication at the final defense.

19. Graduate Records and Student Progress
The student will be apprised of timetables and regulations at the beginning of their studies. Subsequently, it is the responsibility of the student and the major advisor to meet the timeliness for the degree program, including the scheduling of annual meetings of the A&E Committee. Time table forms will be sent to students annually reminding them of graduate requirement deadlines that must be satisfied to remain in Good Standing. Student and thesis advisor must sign and return this form to the Departmental Chair within one month of receiving the document.

20. Time Line for Masters Degree Candidates

<table>
<thead>
<tr>
<th>Relative Timing</th>
<th>Requirement to be Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to registration for first semester</td>
<td>Academic Evaluation Test (AET)</td>
</tr>
<tr>
<td>First academic semesters</td>
<td>Remove academic deficiencies</td>
</tr>
<tr>
<td>End of first semester</td>
<td>Select thesis advisor</td>
</tr>
<tr>
<td>End of first academic year</td>
<td>• Establish A&amp;E Committee</td>
</tr>
<tr>
<td></td>
<td>• Hold first A&amp;E Committee meeting</td>
</tr>
<tr>
<td></td>
<td>• File Plan of Study</td>
</tr>
<tr>
<td></td>
<td>• Pass 3 of 6 sections of the AET</td>
</tr>
</tbody>
</table>
### 21. Time Line for Doctoral Degree Candidates

<table>
<thead>
<tr>
<th>Relative Timing</th>
<th>Requirement to be Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to registration for first semester</td>
<td>Academic Evaluation Test (AET)</td>
</tr>
<tr>
<td>First academic semesters</td>
<td>Remove academic deficiencies</td>
</tr>
<tr>
<td>End of first semester</td>
<td>Select thesis advisor</td>
</tr>
<tr>
<td>End of first academic year</td>
<td>• Establish A&amp;E Committee</td>
</tr>
<tr>
<td></td>
<td>• Hold first A&amp;E Committee meeting</td>
</tr>
<tr>
<td></td>
<td>• File Plan of Study</td>
</tr>
<tr>
<td></td>
<td>• Pass 3 of 6 sections of the AET</td>
</tr>
<tr>
<td>Third semester</td>
<td>Give first departmental seminar</td>
</tr>
<tr>
<td>End of second academic year</td>
<td>• Pass written comprehensive exam</td>
</tr>
<tr>
<td></td>
<td>• Hold second A&amp;E Committee meeting</td>
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<tr>
<td></td>
<td>• Complete or nearly complete didactic courses</td>
</tr>
<tr>
<td>End of fifth semester in residence</td>
<td>• Submit &quot;mini-proposals&quot; and present them at an A&amp;E Committee meeting</td>
</tr>
<tr>
<td>End of sixth semester in residence</td>
<td>• Submit full proposal to A&amp;E Committee</td>
</tr>
<tr>
<td></td>
<td>• Defend full proposal and pass oral exam</td>
</tr>
<tr>
<td></td>
<td>• Give second departmental seminar</td>
</tr>
<tr>
<td>Fourth - tenth year in residence</td>
<td>• Hold annual A&amp;E Committee meetings</td>
</tr>
<tr>
<td></td>
<td>• Give thesis seminar</td>
</tr>
<tr>
<td></td>
<td>• Pass final defense</td>
</tr>
</tbody>
</table>
Final Note: As previously stated, failure to stay on the appropriate time line is grounds for dismissal from the degree program. In order to continue in the program, approval of the A&E Committee will be required. Even if the student is granted permission to continue, the A&E Committee may impose other sanctions (vide supra).

22. Appendix

◆ In preparing the original proposal, information regarding proposal preparation for federal funding agencies may be helpful. Forms and budget examples for the National Science Foundation and the National Institutes of Health may be found at:
  • http://www.nsf.gov/funding/

◆ The Departmental Mentor Form may be found in electronic format on the C&B web site. After a mutual agreement is struck between the student and the faculty member whose group the student would like to join, the form should be completed, printed, signed and submitted to the Department Chair for final approval.

◆ The report form for annual meetings of the A&E Committee is available in electronic format on the C&B web site. Graduate students should fill out the top of this form, print it, and bring it to each A&E Committee meeting.

◆ The evaluation form for graduate student seminars is available in electronic format on the C&B web site. Prior to the second-year seminar, the student should complete the top of the form, print one copy for each member of the GSPC, and distribute those copies immediately before beginning the seminar.

◆ The Departmental Check-out Form is available in electronic format on the C&B web site.