

PHARMACEUTICAL SCIENCES STUDENT HANDBOOK

**Division of Chemical Biology
and Medicinal Chemistry (CBMC)**

Fall 2023

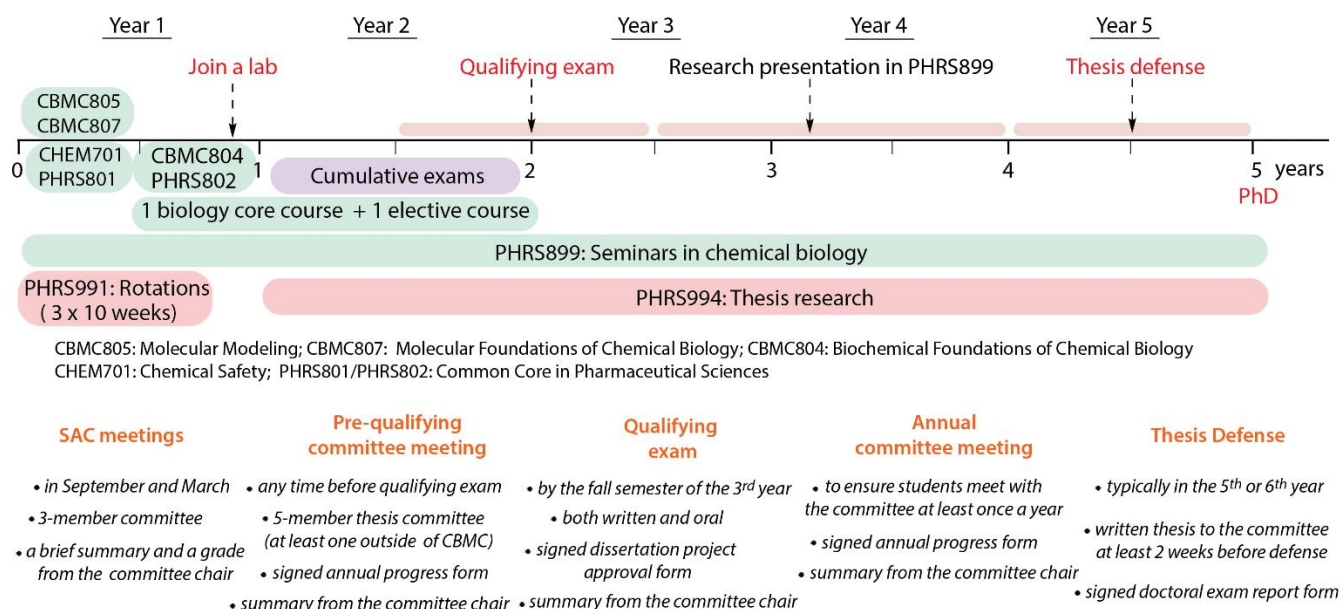
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PROGRAM OVERVIEW

The CBMC Division currently has 42 graduate students and 21 graduate faculty. Students join CBMC through application to either the Pharmaceutical Sciences or the Biological and Biomedical Sciences Program (BBSP). To complete the CBMC graduate program, a student needs to pass 7 courses, cumulative exams, qualifying exam and thesis defense. In addition, students will participate in the weekly seminar series throughout the training. Over the last 10 years, more than 50 PhD students have graduated from the CBMC program and the average time to completion is approximately 5 years.

Our mission is to train the next generation of independent thinkers and problem solvers in the general area of chemical biology and medicinal chemistry. We are committed to creating a safe and supporting environment for students to grow and thrive, and embrace diversity, equality and inclusion.



Please contact Ain Mason (amason12@email.unc.edu) or Qisheng Zhang (qs Zhang@unc.edu) for questions.

I. DIVISIONAL PERSONNEL

FACULTY

Tenure track

Dr. Jeffery Aubé – Fred Eshelman Distinguished Professor
Dr. Albert Bowers - Associate Professor and Vice Chair
Dr. Stephen Frye - Professor
Dr. Nathaniel Hathaway – Associate Professor and Division Director of Graduate Admissions
Dr. Lindsey James – Assistant Professor and Seminar Coordinator
Dr. Michael Jarstfer - Associate Professor and Assistant Dean
Dr. David Lawrence – Fred Eshelman Distinguished Professor and Chair
Dr. Andrew Lee - Professor
Dr. Jian Liu - John & Deborah McNeill, Jr. Distinguished Professor
Dr. Robert McGinty – Associate Professor
Dr. Rihe Liu - Professor and Chair of the Cume Evaluation and Examination Committee
Dr. Bryan Roth - Michael Hooker Professor and Director of Psychoactive Drug Screening Program
Dr. Scott Singleton - Associate Professor
Dr. Alexander Tropsha - KH Lee Professor and Associate Dean for Pharmacoinformatics and Data Science
Dr. Qisheng Zhang - Associate Professor and Division Director of Graduate Studies

Research track

Dr. Alison Axtman – Research Associate Professor
Dr. John Bamforth – Professor of the Practice and Director of Eshelman Institute for Innovation
Dr. David Drewry - Research Professor
Dr. Kevin Frankowski – Research Assistant Professor
Dr. Alexander Golbraikh – Research Associate Professor
Dr. Tony Hickey – Professor of the Practice and Director of UNC Catalyst
Dr. Eugene Muratov – Research Associate Professor
Dr. Samantha Pattenden – Research Associate Professor
Dr. Kenneth Pearce - Research Professor and Director of Center for Integrative Chemical Biology and Drug Discovery (CICBDD)
Dr. Paul Sapienza – Research Assistant Professor
Dr. Qunzhao Wang – Research Assistant Professor
Dr. Xiaodong Wang – Research Professor
Dr. Tim Willson – Research Professor and Director of Structural Genomics Consortium (SGC-UNC)
Dr. Yongmei Xu – Research Associate Professor
Dr. Lauren Harr – Research Assistant Professor
Dr. Olexandr Isayev – Research Assistant Professor
Dr. Katelyn Arnold- Research Assistant Professor

STAFF

Adriana Munoz Assistant to the Division Chair

Please see Adriana for all issues related to Dr. David Lawrence and Dr. Lawrence's lab and Divisional staff, CBMC Faculty meeting minutes, faculty budget reports, library copy cards, letterhead and letterhead envelopes, faculty recruitment issues, and paychecks.

Ain Mason Graduate Program Coordinator

Handles all graduate student issues including meeting scheduling, travel advances, reimbursements and check requests, course packs, exam copies, bulk copying, research poster printing, and building badge access.

Ardith Burkes Embedded Counselor

Provides mental health and wellness resources and support to students in Eshelman School of Pharmacy as well as one-on-one counseling.

Dottie Forthman Administrative Support Specialist (CICBDD)

Handles administrative tasks for Ken Pearce, Stephen Frye, Jeff Aubé and other CICBDD faculty.

Sara Leslie Business Operations Officer (CICBDD)

Manages finances, human resource matters, facilities, support services, and research administration for CICBDD.

Kim Swain Administrative Support Specialist (SGC-UNC)

Handles administrative tasks for Tim Willson, David Drewry, Alison Axtman and other SGC-UNC personnel.

Mac Balatico HR Specialist

Please see Mac if you are an EPA employee (graduate students, faculty, research associates) and you have any EPA employee related questions. For student-related HR issues please speak with the Graduate Studies Coordinator first.

OISSS Office of International Student & Scholar Services

Please visit Human Resources when you first arrive into the country, and a representative there will direct you to this office to get information regarding your visa, social security number, and other items related to being an international student.

BUSINESS OFFICE

Chrissy Crockett Purchasing Specialist

Chrissy is the main contact for ordering and ordering processes.

Keith Stallings SOP Facilities Manager

Handles issues associated with building and facilities.

II. THE CURRICULUM

CBMC Course Requirements

Fall of the 1 st Year	
Course	Credits
CBMC 805: Molecular Modeling	3
CBMC 807: Molecular Foundation of Chemical Biology	3
PHRS 801: Common Core in Pharmaceutical Sciences	1
PHRS 899: Seminars in Chemical Biology	1
PHRS 991: Research in Pharmaceutical Sciences*	1
CHEM 701: Introduction to Lab Safety	1
Spring of the 1 st Year	
CBMC 804A: Biochemical Foundations of Chemical Biology	3
CBMC 804B: Foundations of Chemical Biology Journal Club	1
Biology Core Course if needed	3-4
PHRS 802: Drug Development & Professional Skills	1
PHRS 899: Seminars in Chemical Biology	1
Elective Course if needed	variable
PHRS 991: Research in Pharmaceutical Sciences*	1 or more [§]
Fall/ Spring of the 2 nd -5 th Years	
PHRS 899: Seminars in Chemical Biology [#]	1
PHRS 994: Research in Pharmaceutical Sciences [†]	3
Elective Course or Biology Core Course if needed	variable

*Students register for the course “section” which corresponds to their adviser. This is section 417 for first year students.

[§]Student must be registered for a minimum of 9 total credit hours for the semester when enrolled in PHRS 991.

[#]In years 2-5, students should register for the course only when they are scheduled to present a seminar in the semester, under the “section” which corresponds to the course director for their divisional seminar.

[†]Students must be registered for a minimum of three credit hours of PHRS 994 after joining a lab doing thesis work.

The Table above outlines the course requirements and timing for all students enrolled in CBMC, either by direct admission into the Pharmaceutical Sciences graduate program or through the Biological and Biomedical Sciences Program (BBSP).

A student becomes academically ineligible to continue in the CBMC graduate program when receiving a grade of F or nine or more hours of L, or failing the qualifying exam (either the written or oral examination) for the second time.

CBMC 807: Molecular Foundations of Chemical Biology. 3 credit hours. Prerequisites: Students are expected to have a solid understanding of introductory organic chemistry as taught at the undergraduate level.

This course provides a review of important concepts in organic chemistry as they apply to biological research. Topics include a review of intermolecular interactions as they apply to biological structures and function, a discussion of how small molecules interact with their targets, an overview of synthetic methods that relate particularly to drug molecules, and basic strategies of drug design.

CBMC 805: Molecular Modeling. 3 credit hours. Prerequisites: None

This course provides a general introduction to the field of Molecular Modeling while providing relevant applications of theory to both academic and industrial research endeavors.

CBMC 804A: Biochemical Foundations of Chemical Biology. 3 credit hours. Prerequisites: CHEM 466, BIOC 505, 601, or PHCO 643; or permission of instructors.

This course covers core biochemical and molecular biology techniques, concepts, and tools used to conduct research at the interface of chemistry and biology. Topics include enzymology, characterization of drug-target interactions, mechanisms-based inhibitor design, assay design and development, targeting kinases and GPCRs, biopharmaceuticals, gene therapy, nucleic-acid binding agents, information-based drugs, chemical tools to study epigenetics, harnessing biosynthetic pathways for chemical diversity, and other recent advances and techniques in drug discovery.

CBMC 804B: Foundations of Chemical Biology Journal Club. 1 credit hour. Prerequisites: Enrollment in CBMC 804A.

This course is a series of presentations by students that run in concert with CBMC 804A.

CHEM 701: Introduction to Laboratory Safety. 1 credit hour. Prerequisites: First year graduate student status or permission of instructor

This course provides an overview of safety rules and regulations, guidance in safe laboratory practice, and creates a culture of laboratory safety.

PHRS 801: Common Core in Pharmaceutical Sciences. 1 credit hour. Prerequisites: None.

This course provides an interdisciplinary environment for students from each of the four Divisional PhD programs in UNC Eshelman School of Pharmacy. Students will learn about and develop skills in topics related to responsible conduct of research, pharmaceutical development, professional development, and independent development.

PHRS 802: Drug Development and Professional Skills Development. 1 credit hour. Prerequisites: None.

This course provides an interdisciplinary environment for students from each of the four Divisional PhD programs in UNC Eshelman School of Pharmacy. Students will learn about the general process of drug development and develop associated professional skills.

Biology Core Course: Each student has the option to choose one 3- or 4-credit hour course on campus that is focused on biological systems or techniques. A good starting point to find such a course is the BBSP website. Some examples include PHCO701 (Introduction to Molecular Pharmacology), BIOC706 (Biochemistry of Human Disease), GNET631 (Advanced Molecular Biology), CBIO643 (Cell Structure and Function) and CBIO893 (Advanced Cell Biology).

Elective Course: Students have the option to take one elective course of their interest. There is no requirement on the number of credit hours of the course. Students typically choose a course that provides specific skills and knowledge their thesis work needs.

PHRS 899: Seminars in Chemical Biology

Students must register for PHRS 899 during the first year of their graduate program and the semester that they present their research seminar (see below). Seminars are conducted jointly with the Division of Chemical Biology & Medicinal Chemistry and Biological Chemistry in the Department of Chemistry. Attendance at all Division seminars is mandatory. A Qualtrics survey will be sent out every week for each seminar (student and invited speakers). Completion of this assignment is required and will be used to track attendance. If a student plans to miss a seminar for any reason, they should contact the seminar coordinator. Two unexcused absences will result in the seminar coordinator contacting the student's research advisor, and this will be taken into account when assigning grades for PHRS 994. In the case of first year students, the student will receive a low pass grade.

As an additional component of the seminar requirements of the graduate curriculum, attendance by all students is required during a student's Doctoral Defense. These Defense seminars are held outside of the normal seminar series.

Each student is required to present a seminar in PHRS 899 either in the student's third year or in the beginning of his/her fourth year. Students will be assigned a grade in PHRS 899 for that semester based on their seminar presentation. In this seminar, the student critically reviews the area pertinent to his/her thesis topic making sure that s/he discusses studies that include his/her group's contributions and those of other laboratories and includes a description of the student's ongoing studies that add to this body of research. Faculty members will evaluate the student seminar. Students receiving an overall failing evaluation on the presentation will receive an "incomplete" grade in PHRS 899 for that semester and must consult with the seminar coordinator before giving a make-up seminar at a later date. Additionally, students receiving "incomplete" grades may be advised to seek further training in presentations. In those cases where the student's research contains intellectual property (IP) and where disclosure risks the IP, a student can provide a comprehensive review of a different subject in medicinal chemistry. Permission to do so will require approval of the thesis adviser and the seminar coordinator. Each seminar topic, title, summary, and research article must be approved by the student's research adviser and seminar coordinator. A student presenter should send the title of their seminar talk to the Graduate Program Coordinator upon request.

PHRS 991: Research in Pharmaceutical Sciences (Research Rotations)

During the first two semesters, the student conducts three ~10-week research rotation projects, each under the supervision of a different faculty member. These rotation projects are considered as course work for PHRS 991. Students select rotations from any of the CBMC Faculty. With approval of the DDGS, students may also perform rotation projects with faculty outside the labs of the CBMC Faculty, especially when the rotation will provide training in an area that is outside of the expertise of the CBMC Faculty.

To select an adviser for each research rotation, the student should interview members of the CBMC faculty about possible projects. Prior to each rotation, the student will turn in a RESEARCH ROTATION LAB SELECTION FORM (Appendix A) to the Graduate Program Coordinator. Over the course of the first year each student is encouraged to schedule individual interviews with all members of the CBMC faculty. Although varied slightly from year to year, the rotations usually start in the late August and end in the late April in the next year. The schedule for the 2023-2024 academic year is as follows:

Fall: Monday, August 28 – Friday, November 3 (OK to start before August 28)

Winter: Monday, November 13 – Friday, January 26

Spring: Monday, January 29 – Friday, April 12

Students admitted in the fall semesters can begin their rotations the summer before. In that scenario, the student must contact the Graduate Program Coordinator at least four weeks prior to the start of the

rotation. The summer rotation will be considered as one of their three required rotations. A waiver for one research rotation may be granted if a student has previously completed substantial independent research. Students seeking such a waiver must petition the DDGS, and provide information (e.g. reports, manuscripts, grant proposals, and/or letters from research advisers) about their previous research. If a student has obtained a specific fellowship to work with a CBMC faculty member, then research rotations may be optional.

During lab rotations, students are expected to work in the laboratory at least 20 hours per week. Students are fully integrated into the laboratory during their rotation projects and are involved in lab meetings and journal clubs. At the beginning and end of each rotation, the rotation adviser and student review a written or oral statement of expectations for the student's performance in the laboratory. These discussions provide the student with the advisers' expectations and critical comments on areas of excellence and weakness. Guidelines for the research rotations are described in the PHRS 991 syllabus.

The DDGS serves as the temporary advisor for the first-year students who enroll in PHRS 991. The DDGS will help set up a Student Advisory Committee (SAC) at the beginning of the first semester based on a student's request and availability of faculty members. The SAC consists of three CBMC faculty, designated to provide additional mentoring to the first year student. Students should take full advantage of their SACs to discuss new opportunities or difficulties during this first year.

At the end of each rotation, students will submit a written report using the Research in Pharmaceutical Sciences – Student Evaluation Form (Appendix B) to the Graduate Program Coordinator. In addition, they will present the results of their rotation to their SAC at two official meetings (one in September/October and another in February/March, approx. 30-60 min each). This presentation should consist of at least 6-8 slides, covering a self-introduction, background of the prior rotations project, research goals and results, as well as future plans. The SAC, in consultation with the rotation adviser, will provide a brief summary and evaluation and submit a grade to the Graduate Program Coordinator and the DDGS to be entered at the end of the semester. After the third rotation, students will present the work of their rotation in the CBMC End of Year Mini-Symposium.

PHRS 994: Research in Pharmaceutical Sciences (Thesis Research)

The students begin to register 3 credit hours PHRS 994 each semester once they have chosen the thesis adviser. Guidelines for the thesis research are described in the PHRS 994 syllabus.

III. ACADEMIC PROCEDURES

Research Adviser Selection

By the end of the third rotation (usually late April in the first year), a student is expected to have selected a research adviser for thesis work. A signed Research Adviser Selection Form (Appendix C) have to be submitted to the Graduate Program Coordinator.

The Student's Dissertation Committee (DC)

Within six months since joining a lab for thesis work, the student should form a Dissertation Committee and report this to the CBMC Graduate Program Coordinator using the REPORT OF DOCTORAL COMMITTEE COMPOSITION FORM (Appendix D). The DC offers guidance to the student regarding dissertation research and provides oversight of student progress towards research objectives.

The DC for a PhD student consists of three CBMC faculty including thesis advisor plus two "examiners" selected in consultation with advisor. At least one of the additional members must be from outside the UNC Eshelman School of Pharmacy. A majority of the members of a DC (and a majority of the people passing the student on an examination or approving a doctoral dissertation) must be regular members of

the UNC-Chapel Hill Graduate Faculty from CBMC. Other members may be special appointees to the Graduate Faculty. Students are encouraged to include scholars from outside the program to serve as members of doctoral committees. The outside members maybe selected from among scholars from other academic programs or from other institutions where scholarly work is conducted. Additional members beyond the usual five may be added if the student and the Research Adviser desire to do so. The Chair of the DC must be a CBMC faculty member and cannot be the student's primary Research Adviser.

Any changes in the constitution of the DC should be reported by the student to the CBMC Graduate Program Coordinator and DDGS. In the event that the student wishes to change his/her Research Adviser, the student must discuss the situation with the DDGS and consult the CBMC Graduate Program Coordinator for proper procedures.

The DC conducts the Doctoral Oral Examination and the Final Oral Examination (see below) as prescribed by the Graduate School requirements. In addition, each doctoral student is expected to consult with members of the DC at frequent intervals throughout the progress of his or her research and will be required to meet with the committee at least once a year. Before the meeting, the student will share with committee members a short report, for example a one-page summary containing bullet points of research milestones and future directions of the Student Evaluation Form from the PHRS 991 or PHRS 994 syllabi. The report will be followed by a progress review meeting.

Within one week of each DC meeting the DC chair in conjunction with the student will prepare an Annual Progress Report of Dissertation Committee (Appendix E) indicating (a) the date of the DC meeting (b) faculty present (c) a brief (~1 page) summary of the discussion and recommendations of the DC. Alternatively, the chair can direct and assist the student with the report. The report will be emailed to all DC members for comments. Within two weeks after the DC meeting the student or Chair will email a final report (incorporating all faculty comments) to (a) the DC, (d) the student, (c) the DDGS, and (d) the CBMC Graduate Program Coordinator. The CBMC Graduate Program Coordinator will maintain an electronic file of all CBMC DC meetings, and Student Services Manager will maintain an electronic file of all ESOP DC meetings. Students and DCs that does not meet within a one-year interval will be reminded by the Graduate Program Coordinator, and continued failure to meet the requirements can result in the student receiving a failing grade for PHRS 994 during the related semester.

Cumulative Exams

In lieu of a single comprehensive written examination for the program, there are a series of monthly examinations on current research topics from the literature. These are considered one part of the preliminary written exam. These exams are designed to help students initiate the process of self-education and to encourage them to read the current literature. Moreover, the written cumulative exams (or "cumes") test the student's scientific knowledge and problem-solving skills relating to a variety of medicinal chemistry subjects and prepare students for the oral doctoral examination. Students must accumulate the required points to maintain good standing in the program.

Cumulative examinations are scored as: High pass = 4 points, Pass = 3 points, Low Pass = 1 point, Fail = 0 points, unexcused absence = -1 point. Students must accumulate 24 points within 12 consecutively administered monthly examinations beginning after their second semester (May or June) to maintain good standing in the program. Students must take each exam, and scheduling conflicts must be negotiated with examiner. Students may begin taking cumulative exams early if desired, but once they begin, they must continue taking exams. Every exam counts toward the 12 consecutively administered examination periods whether or not the student takes the exam.

The name of the faculty examiner, topic of the examination, and suggested reference sources will be posted one month prior to each examination date. Students are required to take each exam even if they are unfamiliar with the topic, and students failing to take the exam will be penalized 1 point. Appropriate arrangements must be made between the examiner, the Chair of the Cume Evaluation and Examination Committee, currently Dr. Rihe Liu, for students that require an excused absence from an exam date; for

example, sickness, conducting research abroad, or attending a scientific conference.

An up-to-date record of the student's progress on the cumulative exams is maintained by the Graduate Studies Program Coordinator and is available to the student. Students will be officially informed by the Graduate Program Coordinator whether they have accumulated the required points or not. Failure to earn the 24 points in 12 months could result in dismissal from the program. Such students will be evaluated by the Division faculty for consideration of remediation and will be informed of the decision. If the faculty decide remediation is available, the faculty will determine what the mechanism of remediation will be made available to the student.

Qualifying Exams

The Qualifying Exam consists of both the written and oral requirements. By the end of the 5th semester (the fall semester of the third year), the student must submit the Dissertation Prospectus to the Dissertation Committee. The format corresponds to that of an NIH F31 Predoctoral Fellowship application (<https://researchtraining.nih.gov/programs/fellowships/F31>); namely, a 6-page proposal complete with Abstract, Specific Aims, Background/Significance, Innovation, Research Design and Methods, and Bibliography sections. The DC will examine the prospectus.

After receiving comments from the DC, typically reported to the student at the Oral Examination, the student will have the Committee Chair complete Part I of the DOCTORAL EXAM REPORT FORM (Appendix F). There are three possible outcomes for the written examination:

- (i) pass – without restrictions
- (ii) pass – with special requirements, e.g. additional rewriting (in total or sections)
- (iii) fail – this grade is appropriate for students who reveal inadequate general knowledge and/or who demonstrate that they are not prepared to undertake their thesis research project.

Two to four weeks after submitting the prospectus to the DC, the student must take and pass the Doctoral Oral Examination. The Graduate Program Coordinator will finalize scheduling of the Oral Exam, including its location.

The Oral Exam is a ~2-hour oral defense of the written Prospectus. The dissertation project is presented and discussed. The student is encouraged to discuss the format and the content of the oral exam with the Chair of the DC at least three weeks before the Doctoral Oral Exam takes place. The Oral Exam will accomplish the following purposes, among others:

- (i) determine the candidate's fitness to continue work toward the doctorate; and
- (ii) discover any weaknesses in the candidate's knowledge which need to be remedied by additional course work or other forms of instruction

There are four possible outcomes for the oral examination:

- (i) pass – without restrictions
- (ii) pass – with special requirements, e.g. additional courses to take
- (iii) pass – but without approval for the thesis project as presented. In this case another presentation of the thesis project may be required at a later time.
- (iv) fail – this grade is appropriate for students who reveal inadequate general knowledge and/or who demonstrate that they are not prepared to undertake their thesis research project.

A student passes an examination only after the approval of a majority of the examining committee members (DC). The Graduate School considers the examining committee's vote to be final. Upon successful completion of both the Doctoral Written and Oral Exams, the student submits a signed REPORT OF APPROVED DISSERTATION PROJECT FORM (Appendix D) and a signed DOCTORAL EXAM REPORT FORM (Appendix F, parts I and II complete) to the CBMC Graduate Program

Coordinator.

A student who fails the Doctoral Oral Examination is permitted to retake the examination. A graduate student who fails either the written or oral examination may not take the examination a second time until at least three months after the first attempt. A student who fails an examination for the second time becomes ineligible for further graduate work. Upon request from the DDGS, the Graduate School may grant a student a third and final opportunity to take the examination. However, no student may continue in the program or take an examination a third time without approval by the Administrative Board of the Graduate School.

Students are required to pass the Qualifying Exam by the end of the 5th semester. Neither the student, Research Adviser, nor Dissertation committee has the authority to postpone the first attempt at the Qualifying Exam past the end of the 5th semester of graduate study. The DDGS will only consider special cases after receiving a formal, written petition from the student and his/her DC.

Leave with a Master's Degree

Occasionally students may choose to leave the program with a Master's (MS) degree for various reasons. To graduate with a MS degree, the student will need: 1) Complete all CBMC required course work including Cume exams; 2) Complete 30 credit hours; and 3) Write and defend a MS thesis. To initiate the process, the student will need to submit an Intra-University transfer form to switch from the PhD to the MS program. In addition, the student should register for PHRS 993 (instead of PHRS 994 for PhD) during the semester that the MS thesis is submitted.

Dissertation and Final Doctoral Oral Examination

The Final Doctoral Oral Examination is primarily a true defense of the dissertation. It comprises an open, public seminar with questions from the audience in combination with a closed-door session limited in attendance to the candidate and the committee. All CBMC graduate students are expected to attend the Final Doctoral Examination of fellow CBMC students.

As described above, no fewer than five persons shall constitute the examination committee for the Final Doctoral Oral Examination. A majority of the members of a doctoral committee and a majority of the persons signing a doctoral dissertation must be full members of the graduate faculty. Other members may be granted special appointment as graduate faculty – this includes UNC research professors, scientists working at other institution, government, non-profit, or for-profit organization

The Final Doctoral Oral Examination will be held no sooner than one semester after completion of the Preliminary Doctoral Oral Exam and after all members of the DC have had adequate opportunity to review the formal draft of the doctoral dissertation. The Research Adviser and student must schedule the Final Doctoral Oral Examination after confirming the time and date with the other members of the DC. (The Graduate Program Coordinator will typically schedule and complete room reservations for ALL meetings and must be notified of all scheduled meetings.) The Dissertation must be submitted to the DC at least two weeks before the thesis defense. The CBMC Graduate Program Coordinator must be notified of the examination date, place, and time, and will ensure that the public defense is properly advertised. The student must be enrolled in at least three (3) hours of PHRS 994 at the time of the defense. The Research Adviser is responsible to the members of the student's doctoral committee in determining that the formal draft is in appropriate form for their evaluation. At the time of the final oral defense, but no later than the oral, the committee may require alterations and corrections, but these should constitute relatively minor changes agreed to by a majority of the committee members. The committee chair is responsible for verifying that the changes required by the committee have been made. When changes have been verified, the committee chair should sign Part IV of the DOCTORAL EXAM REPORT FORM (Appendix F). The student should submit the completed form to the CBMC Graduate Program Coordinator.

Dissertations must be submitted to The Graduate School according to the schedule in the University Registrar's Calendar in final form designed to meet the standards defined in the Graduate School's Thesis

and Dissertation Guide. Documents submitted electronically will not require front page signatures. It is strongly suggested that every dissertation be submitted well before the deadline to ensure ample time for format revisions.

A doctoral student has eight calendar years from the date of first registration in the doctoral program to complete the doctoral degree (Example: If the date of first registration is August 2018, the eight year time limit expires at Commencement, August 2026).

Application to Graduate

When a doctoral candidate nears the end of research and can anticipate final approval of the dissertation, the student should formally apply for the doctoral degree for the graduation according to the deadline listed in the UNC Graduate School bulletin. The application can be submitted online in ConnectCarolina's Self Service area.

IV. OTHER RESOURCES AND TRAINING OPPORTUNITIES

Fellowship Opportunities

There are multiple fellowship opportunities both externally, including the travel funds for students from the CBMC Division. In addition, students have access to various workshops and internship opportunities. A selected list is provided in Appendix G.

Ethics Training

The NIH now requires formal and informal ("continuous") training in responsible conduct of research. This informal training should occur regularly through lab meetings, seminars, regular discussions, etc. Divisions are responsible for ensuring continuous instruction in the responsible conduct of research (RCR) for their students in compliance with NIH policy which states, "Instruction must be undertaken at least once during each career stage, and at a frequency of no less than once every four years. This instruction should involve substantive contact hours between the trainees/fellows/scholars/participants and the participating faculty. However, obtaining training through only online courses or tutorials will not satisfy this requirement." Acceptable programs that meet these NIH requirements generally involve at least eight contact hours. A semester-long series of seminars/programs may be more effective than a single seminar or one-day workshop because it is expected that topics will then be considered in sufficient depth, learning will be better consolidated, and the subject matter will be synthesized within a broader conceptual framework. A listing of RCR training opportunities available on campus is available through the Office of Student Affairs.



Division of Chemical Biology and Medicinal Chemistry

RESEARCH ROTATION LAB SELECTION FORM

Date: _____

Dear Division Director of Graduate Studies:

I plan to spend the _____ semester of _____ in research rotation
(spring, summer, fall) (year)

in the laboratory of Dr. _____. This will be my _____
(1st, 2nd, 3rd)

laboratory rotation and I will register for CBMC 991 (except in summer).

Sincerely,

Student

Rotation Advisor

PHRS 991/994 Research in Pharmaceutical Sciences - Student Evaluation Form

- I. Semester Goals & Objectives
 - II. Student's Self-Assessment
 - III. Faculty Advisor's Evaluation
 - IV. Faculty Advisor Grade Assignment
-

Select Course: ☐ PHRS 991 ☐ PHRS 994

Select Semester: ☐ Fall 2019 ☐ Spring 2020

Student Name: _____

Faculty Research Advisor: _____

Current Advisory Committee Status:

☐ SAC ☐ DC

Indicate date of most recent SAC/DC meeting and confirm submission of Committee Report.

Date: _____ ☐ Committee Report submitted to _____.

I. Semester Goals & Objectives

- *After meeting with your research advisor, detail your goals and objectives for the upcoming semester below.*
- ***Discuss with your faculty advisor, revise (if necessary), initial/date, and file.***
- *If applicable, updated or additional goals and objectives for the semester not covered in the SAC/DAC report should be provided in the space below.*

Semester Goals & Objectives

[to be completed by student]

Student's Initials _____ **Advisor's Initials** _____ **Date** _____

II. Student's Self-Assessment

- *The student should complete the self-assessment below, and submit to the faculty research advisor for review by December 6th (Fall semester) or April 30 (Spring semester).*
- *Students should provide specific rationale for their evaluation in the space below.*

1. Which of the following best reflects your performance during the current semester and progress toward completing the goals/objectives in Part I?

- ☐ Exceeded expectations
- ☐ Met expectations
- ☐ Did not meet expectations

2. Rationale (*e.g., describe goals/objectives met; describe goals/objectives not met [with explanation]*)

[to be completed by student]

3. List notable milestones and achievements achieved in this semester (e.g., presentations, publications, grant submissions, awards)

[to be completed by student]

3. Advisory Committee Updates

- Has a SAC/DAC meeting been held since the start of the semester?

☐ Yes ☐ No ☐ Not applicable (SAC/DAC not yet formed)

- If yes, indicate date of most recent meeting and confirm submission of Committee Report (Form E or Form H).

Date: _____ ☐ Committee Report submitted _____.

- If no, indicate projected month/year for the next meeting: _____

III. Faculty Advisor's Evaluation

- *This section should be completed by the faculty research advisor after reviewing the student's self-assessment.*
- *Faculty are encouraged to provide specific rationale for their evaluation in the space provided below. This is particularly important for students for that did not meet expectations. This is also important when the student self-evaluation is inconsistent with the faculty advisor's evaluation.*
- *This evaluation should be reviewed and discussed with the student by December 16 (Fall semester) or May 7 (Spring semester), and then signed/dated.*

1. Which of the following best reflects the student's performance during the current semester and progress toward completing the goals/objectives in Part I?

- ☐ Exceeded expectations
- ☐ Met expectations
- ☐ Did not meet expectations
- ☐ Failed to meet expectations by a significant margin

2. Rationale

[to be completed by faculty research advisor]

Rationale (con't)

[to be completed by faculty research advisor – if additional space is needed]

IV. Faculty Advisor's Grade Assignment

- The faculty advisor should assign a final grade for the course in accordance with their evaluation and the PHRS 991/994 grading scale described in this syllabus.
- The faculty advisor and student should sign/date this form, and submit an electronic copy to the Graduate Program Coordinator by December 16th (Fall semester) or May 7th (Spring semester).
- The faculty advisor and student should retain a copy of this form.
- The faculty advisor should proceed to submit the final grade in Connect Carolina.

☐ **H** ☐ **P** ☐ **L** ☐ **F** ☐ **IN**

X

Digital Signature
Student

X

Digital Signature
Advisor



Division of Chemical Biology and Medicinal Chemistry

RESEARCH ADVISER SELECTION FORM

Date: _____

Dear Division Director of Graduate Studies:

I have chosen _____ as my Research Adviser. I realize I now have six months in which to choose four additional faculty to comprise my Dissertation Committee (DC).

Sincerely,

Student

Adviser

cc: Division Chair



THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
 The Graduate School
PART I: REPORT OF DOCTORAL COMMITTEE COMPOSITION
 and
PART II: REPORT OF APPROVED DISSERTATION PROJECT

(NOTE: The Committee Composition form should be on file with the Graduate School before, or filed **concurrently with**, any action reflecting their approval.)

Student's Name _____ PID# _____ Department/Curriculum/School: _____
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PART I: REPORT OF DOCTORAL COMMITTEE COMPOSITION																	
<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: center; width: 50%;">Committee Member Names <small>(please print full names and list alphabetically)</small></th> <th style="text-align: center; width: 50%;">Faculty Status <small>(indicate rank, or dates, if fixed term)</small></th> </tr> <tr><td>1. _____</td><td>_____</td></tr> <tr><td>2. _____</td><td>_____</td></tr> <tr><td>3. _____</td><td>_____</td></tr> <tr><td>4. _____</td><td>_____</td></tr> <tr><td>5. _____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td></tr> </table>	Committee Member Names <small>(please print full names and list alphabetically)</small>	Faculty Status <small>(indicate rank, or dates, if fixed term)</small>	1. _____	_____	2. _____	_____	3. _____	_____	4. _____	_____	5. _____	_____	_____	_____	_____	_____	PART II: REPORT OF APPROVED DISSERTATION PROJECT
Committee Member Names <small>(please print full names and list alphabetically)</small>	Faculty Status <small>(indicate rank, or dates, if fixed term)</small>																
1. _____	_____																
2. _____	_____																
3. _____	_____																
4. _____	_____																
5. _____	_____																
_____	_____																
_____	_____																
Dissertation Advisor(s): _____ <div style="text-align: center;"><small>(print name)</small></div> _____ <div style="text-align: center;"><small>(print name)</small></div>																	
Committee Chair: _____ <div style="text-align: center;"><small>(print name)</small></div>																	
Committee approved by : <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> _____ <div style="text-align: center;"><small>(Date)</small></div> </div> <div style="width: 45%;"> _____ <div style="text-align: center;"><small>(Director of Graduate Studies)</small></div> </div> </div>																	

** Refer to the Graduate Handbook for policies about committee composition and the role of advisor and chair.*

Submit form to The Graduate School when complete.

PART II: REPORT OF APPROVED DISSERTATION PROJECT	<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: center;">Signatures <small>(required only at time of project approval)</small></th> </tr> <tr><td>_____</td></tr> <tr><td>_____</td></tr> <tr><td>_____</td></tr> <tr><td>_____</td></tr> <tr><td>_____</td></tr> <tr><td>_____</td></tr> <tr><td>_____</td></tr> </table> <p style="margin-top: 20px;">The committee, by their signatures provided above, indicate that they have judged the dissertation project to be feasible and have advised the student to proceed with the dissertation research.</p> <p style="margin-top: 20px;">Working title of dissertation:</p> <p style="margin-top: 40px; text-align: center;">_____</p> <div style="text-align: center;"><small>(date)</small></div>	Signatures <small>(required only at time of project approval)</small>	_____	_____	_____	_____	_____	_____	_____
Signatures <small>(required only at time of project approval)</small>									



CHEMICAL BIOLOGY & MEDICINAL CHEMISTRY ANNUAL PROGRESS REPORT OF DISSERTATION COMMITTEE

(PLEASE NOTE: a committee meeting is required each year)

Date of This Meeting: _____

Name of Student: _____

Research Advisor: _____

This committee has reviewed the student's academic research progress and makes the following report and recommendation (s):

Proposed date of the next committee meeting is: ____/____/____

Signature of Committee Members:

_____, Committee Chair

PROGRESS REPORT IS DUE TO GRADUATE COORDINATOR WITHIN 48 HOURS OF COMMITTEE MEETING



THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

The Graduate School

DOCTORAL EXAM REPORT FORM

NOTE: The Committee Composition form should be on file with the Graduate School **before** exam results are reported.

Student's Name _____	PID# _____
Department/Curriculum/School: _____	

PART I: REPORT OF PRELIMINARY WRITTEN EXAMINATION

On behalf of a majority of the examining committee, I certify that the above named student:

_____ successfully passed the examination _____ *signature of committee chair* _____ *date*

_____ failed to pass the examination _____ *signature of committee chair* _____ *date*

☐ Check here if student previously failed exam. Date(s): _____

☐ By initialing, the committee chair certifies that this student was registered as required during the term this work was completed.

PART II: REPORT OF ORAL EXAMINATION

On behalf of a majority of the examining committee, I certify that the above named student:

_____ successfully passed the examination _____ *signature of committee chair* _____ *date*

_____ failed to pass the examination _____ *signature of committee chair* _____ *date*

☐ Check here if student previously failed exam. Date(s): _____

☐ By initialing, the committee chair certifies that this student was registered as required during the term this work was completed.

PART III: REPORT OF THE FINAL ORAL EXAMINATION (defense of dissertation)

A majority of the committee for the above named student has judged the dissertation defense to be:

_____ acceptable _____ *signature of committee chair* _____ *date*

_____ unacceptable _____ *signature of committee chair* _____ *date*

Committee member signature/date	Pass/Fail	Committee member signature/date	Pass/Fail
---------------------------------	-----------	---------------------------------	-----------

_____	_____	_____	_____
-------	-------	-------	-------

_____	_____	_____	_____
-------	-------	-------	-------

_____	_____	_____	_____
-------	-------	-------	-------

☐ Check here if student previously failed exam. Date(s): _____

☐ By initialing, the committee chair certifies that this student was registered as required during the term this work was completed.

PART IV: REPORT OF THE FINAL DISSERTATION (can be completed at the same time as Part III as appropriate)

A majority of the committee for the above named student has judged the dissertation to be:

_____ acceptable _____ *signature of committee chair* _____ *date*

_____ unacceptable _____ *signature of committee chair* _____ *date*

Committee member signature/date	Pass/Fail	Committee member signature/date	Pass/Fail
---------------------------------	-----------	---------------------------------	-----------

_____	_____	_____	_____
-------	-------	-------	-------

_____	_____	_____	_____
-------	-------	-------	-------

_____	_____	_____	_____
-------	-------	-------	-------

☐ By initialing, the committee chair certifies that the required edits were made and the final document is approved for electronic submission.

- Submit to the Graduate School after all activities have been successfully completed
- Keep copies for your files

Fellowship Opportunities and Other Resources

National fellowships

NIH F31 Pre-doctoral Fellowship

NSF Pre-doctoral Fellowship

American Chemical Society MEDI Division Pre-doctoral Fellowship

American Cancer Society Pre-doctoral Fellowship

American Heart Association Pre-doctoral Fellowship

AFPE pre-doctoral Fellowship

P.E.O. Scholar Award

HHMI-Gilliam Fellowship

University-wide fellowships

Dean's Distinguished Dissertation Award

Dolores Z. Liebmman Fellowship

Off-Campus Dissertation Research Fellowship

The Graduate School Transportation Grant

3MT Competition

Impact & Horizon Award

School-wide fellowships

GSK Fellowship

Eshelman Institute for Innovation Pre-doctoral Fellowship

Khalid Ishaq Graduate Travel Fund Stipend

Brewington Award

GPEN Travel Award

Division-wide fund

Division Travel Fund

Other resources

UNC Student Wellness (<https://caps.unc.edu>)

The Graduate School at UNC (<https://gradschool.unc.edu/>)

The Eshelman Institute for Innovation (<https://unceii.org/>)

UNC Training Initiatives in Biomedical and Biological Sciences (TIBBS) (<https://tibbs.unc.edu>)

NC TraCS Institute (<https://tracs.unc.edu>)

North Carolina Biotechnology Center (<https://www.ncbiotech.org/>)

Science Careers (www.sciencemag.org/careers)

Nature Careers (<https://www.nature.com/careers>)

LinkedIn account for CBMC alumni and current students: CBMC@UNC
(<https://www.linkedin.com/in/cbmc-at-unc-1a78a1218/>)