



**CURRICULUM IN TOXICOLOGY &  
ENVIRONMENTAL MEDICINE**

# **Graduate Student Handbook**

**2024-2025 Academic Year**

**UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL**

## Acknowledgements

The rationale for creating a new and up to date student handbook was based on student and faculty feedback requesting information about the Curriculum in Toxicology and Environmental Medicine (CiTEM) to be compiled into one easy to access location. The first edition of the student handbook was created in 2005 prior to the existence of the University of North Carolina Biological and Biomedical Sciences Program (BBSP). In 2008, CiTEM was made part of the BBSP program and the CiTEM handbook was significantly updated. However, no significant updates have been made since that time. Thus, with CiTEM changes in leadership, course availability, and processes due to an increasingly digital landscape, an overhaul was sorely needed.

The writing of this version of the CiTEM handbook has been a collaborative effort between students and CiTEM Leadership in the Spring of 2024. In particular, the first draft was crafted by a focus group composed of: Elise Hickman, PhD '22, Roland Seim, Erin McNell, and Katie Clough. The first read and edits of our initial complete draft were conducted by: Michelle Fiamingo Fyle, Marc Rodriguez, Brittany Rickard, PhD '24, Morgan Narain, and Ena Vujic. The final draft was provided to the CiTEM Executive Committee for comments, edits, and approval, resulting in the final version presented herein for the 2024-2025 academic year.

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## CiTEM Program Overview

The Curriculum in Toxicology and Environmental Medicine (CiTEM) offers a dynamic environment for graduate training. Collaborative research among faculty in the biomedical, environmental, and public health sciences is not hindered by institutional boundaries or administrative barriers. Students benefit from close interactions with investigators at the National Institute of Environmental Health Sciences (NIEHS), the US Environmental Protection Agency (EPA), and other laboratories in the Research Triangle Park, in addition to those in the faculty of the University of North Carolina at Chapel Hill (UNC-CH). Several centers and programs at the University also foster the development of multidisciplinary initiatives in both research and teaching.

The overall goal of the program is to develop trainees that are knowledgeable in the basic principles of toxicology and environmental health sciences with in-depth experience in the development, execution, and publication of research relevant to toxicology and human health. Trainees' research activities focus on hypothesis-driven studies to determine the mechanisms of action of environmental agents. Emphasis is on understanding the links between the environment and health risks, the mode of action of toxicants and disease pathogenesis, and how emerging knowledge could be translated into prevention strategies, new therapeutic interventions, and an improved scientific basis for risk assessment.

In addition to traditional areas of research and training in Toxicology, this program offers opportunities for multidisciplinary research that cut across several areas of strength:

**Environmental Toxicology, Systems Toxicology, Research Translation, Animal Models of Human Disease, and Biomarkers.**

### Program Contact Information

Program Website: <https://www.med.unc.edu/toxicology/>

Program Director: Ilona Jaspers ([ilona\\_jaspers@med.unc.edu](mailto:ilona_jaspers@med.unc.edu))

Business Services Coordinator: David Chapman ([David\\_Chapman@med.unc.edu](mailto:David_Chapman@med.unc.edu))

Director of Graduate Studies: Meghan Rebuli ([meradfor@email.unc.edu](mailto:meradfor@email.unc.edu))

Director of Postdoctoral Training: Buddy Weissman ([bernard\\_weissman@med.unc.edu](mailto:bernard_weissman@med.unc.edu))

Director of Graduate Admissions: Edward Bahnson ([edward\\_bahnson@med.unc.edu](mailto:edward_bahnson@med.unc.edu))

Written Qualifying Exam Chair: Jim Samet ([samet.james@epa.gov](mailto:samet.james@epa.gov))

## Admissions

Students interested in a PhD in Toxicology from the University of North Carolina at Chapel Hill are recruited by the [Biological and Biomedical Science Program \(BBSP\)](#), which is a unified mechanism to recruit graduate students interested in biomedical and biological sciences. CiTEM is one of the 15 PhD-granting programs within the BBSP.

Once enrolled via BBSP, students must do the following:

- Complete at least three research rotations in laboratories that match their training interest,
- Participate in first-year seminar groups,
- Complete courses offered by any of the biomedical sciences graduate programs (i.e., BBSP does not offer a uniform first-year curriculum), and
- Join the PhD program of their choice by the end of the first year of training.

## CiTEM Mentors

A list of current CiTEM faculty mentors and a brief statement of their research interests can be found on the [CiTEM website](#).

Students interested in rotating with CiTEM mentors should reach out to the faculty of interest to inquire about availability of rotation slots and projects.

The training faculty/mentors affiliated with the CiTEM training program consists of researchers whose primary faculty appointments are at UNC-CH, as well as mentors recruited from other research centers in the area: the US Environmental Protection Agency (US EPA) and the National Institutes of Environmental Health Sciences (NIEHS). The preceptors of CiTEM should demonstrate a track record of productivity, excellence in research, and genuine commitment to effective and inclusive mentoring.

## Required Materials for Faculty Joining CiTEM

If students have identified a faculty mentor who is not a member of CiTEM but would like to join CiTEM based on research on toxicology-related topics, the faculty member will need to request membership by submitting the below documentation to the CiTEM Business and Business Services Coordinator. The CiTEM Executive Committee will then review the materials quarterly and vote on membership status. Following an affirmative vote, the faculty member will receive an official letter confirming membership, be asked to submit a photo, contact information, and a brief summary of their research interests, and can additionally complete the [Request for BBSP Affiliation](#) form, if they have not done so already.

- 1) Personal statement (1-2 pages) which covers:
  - a) Why you are interested in joining CiTEM, particularly emphasizing your interest in collaborative interactions,
  - b) Your expertise or research foci in toxicology and/or environmental medicine,
  - c) Your mentoring and teaching history, and
  - d) Your funds available to support a CiTEM graduate student and research focused on toxicology and/or environmental medicine.
- 2) CV
- 3) Two letters of support from current CiTEM members

## Requirements for Faculty/Mentor Involvement in CiTEM

There are no formal requirements for teaching, but faculty/mentors are encouraged to participate as guest lecturers in the required CiTEM courses when appropriate. In addition, CiTEM faculty/mentors are encouraged to participate in the training program's many facets. These include serving on dissertation committees, the executive committee, the admissions committee, or the qualifying exam committee. Additionally, faculty are highly encouraged to attend the CiTEM seminar series (weekly during the semester) and the yearly CiTEM retreat to stay up to date with ongoing research and logistics, and to maintain a presence to attract future students. Faculty/mentors who are primary mentors of current graduate students will be required to attend the CiTEM seminar series during the weeks in which their students present to introduce their talks by giving a brief overview of the research topic and background. This is also designed to help facilitate the implementation of any feedback received from the CiTEM community.

To ensure the highest quality and most inclusive level of mentoring for all the CiTEM trainees, all members of the training faculty will be highly encouraged to complete an *Entering Mentoring training workshop*. This type of training is especially important for junior faculty, as mentoring training is not typically included in graduate or medical education, but also for senior faculty who may not be aware of current skills and practices to enhance equity and inclusion. The original *Entering Mentoring* curriculum, created by The Wisconsin Program for Scientific Teaching with support from the Howard Hughes Medical Institute Professors Program, is intended specifically to augment the mentee/mentor relationships in a research setting. The UNC Center for the Improvement of Mentored Experiences in Research (CIMER) has expanded the *Entering Mentoring workshop* to create the [Targeting Equity in Access to Mentoring \(TEAM\) ADVANCE curriculum](#). The Office of Graduate Education also offers [Faculty Mentor Training](#) based on the original *Entering Mentoring* curriculum. These programs emphasize equitable and intersectional mentoring skills and practices to support mentees of diverse backgrounds and experiences. Sessions include guided discussion, evidence-based practices, case studies and activities. Participants also have access to online learning modules and web-based resources. Upon completion of the curriculum, participants receive a certificate of completion, which will be part of the evaluation process for members of the training faculty.

The CiTEM leadership team reviews the CiTEM program faculty every 3 years, with retention of membership dependent on a numerical scoring system evaluating their research funding and participation in training and/or teaching activities during the previous 5 years.

# CiTEM Program of Study

## Competencies

Competencies define what students should know and be able to do upon completion of the PhD program. The CiTEM program is designed to provide students with the following competencies necessary for a career in the field of toxicology:

1. Identify and appropriately apply basic principles of toxicology.
2. Develop an informed hypothesis or research question that utilizes the principles of toxicology and can be tested in a research project.
3. Select and develop appropriate research designs, methodologies, and analyses for toxicological research and interpret findings within the context of the current literature.
4. Develop fundamentals of working in a research team: mentoring, teaching, project management, etc.
5. Communicate research results in written, oral, and visual formats to both research and general audiences.

## Program Overview

The CiTEM expects its students to graduate with an excellent understanding of all subdivisions of the discipline of toxicology and in-depth knowledge in their doctoral research area. It also emphasizes different modalities of learning through overview lectures, required reading of original publications, seminars, writing assignments, and intensive research. These goals are supported by the structure of the training program, which is kept flexible so that the training needs of each student are taken into consideration (for instance, enrolling in a biochemistry course, if they have not had one prior to admission by BBSP). Based on this premise, we have developed a list of required core courses, a selection of recommended didactic courses, and several required skill development courses. These are aimed at providing the students with the solid knowledge base a PhD in Toxicology should have, while allowing for a complement of elective coursework relevant to the respective doctoral research topic. Overall, coursework followed by the toxicology students is defined through meetings with the Director of Graduate Studies (DGS), the student's transcript and past performance, and input from research advisors.

## Milestones Overview

### **Exams**

- A written qualifying examination takes place at the end of the second year (after passing core courses). A faculty committee organizes five essay questions; the student selects four and returns the complete answers in five days. Each answer is graded by two faculty members. Results are announced four to six weeks later. ([click for detailed description](#))
- An oral qualifying examination by a five-member doctoral committee includes the defense of the PhD research proposal; this exam should take place before the end of the third year. ([click for detailed description](#))
- A final written and oral exam will take place prior to graduation in the form of a written dissertation document and an oral examination by the dissertation committee, the "dissertation defense". ([click for detailed description](#))

### **Deliverables**

- *Present* doctoral research at scientific meetings at least yearly (Society of Toxicology, local symposia, or others).



- *Publish* doctoral research in peer reviewed field-appropriate journals and accompanying data in public repositories (e.g. UNC Dataverse, NIH GEO). CiTEM does not require doctoral research to be published prior to the dissertation defense. As outlined in more detail in the Dissertation Preparation Guidelines, students should aim to assemble core research chapters (2-4), with 3 publishable units in a dissertation being typical for the program. The goal should be for these chapters to be published, submitted, or in preparation. Of note, each research chapter may be later published in larger or smaller units depending upon the journal (e.g. chapters may be combined for high impact journals, or divided for 'short report' style articles), but each chapter should tell a unique story. For incomplete projects, it is strongly recommended that all available information (introduction, materials and methods, results, discussion, references, figures, and tables) is included as a dissertation chapter, thus allowing someone else to complete and submit the project for peer review. .
- *Write* final dissertation (published papers can be individual chapters) and present a public seminar of the research results.

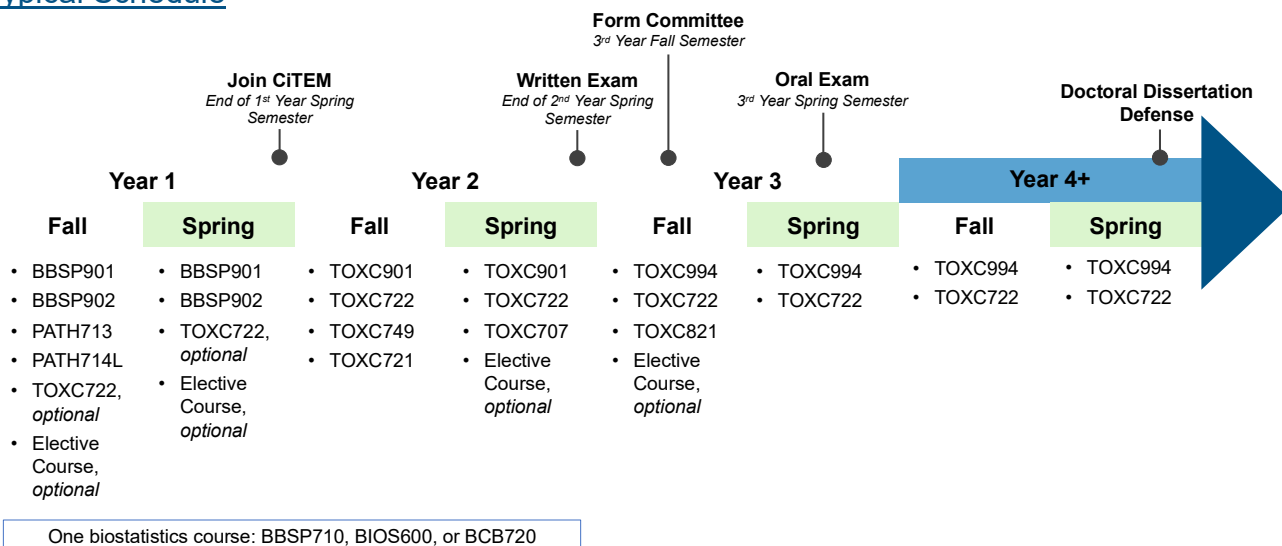
### Typical Timeline for Milestone Achievement

Activity	Required Timeline
Written Exam	End of 2 <sup>nd</sup> year, typically May
Form Doctoral Committee	3 <sup>rd</sup> year Fall semester
First Doctoral Committee Meeting	3 <sup>rd</sup> year early Spring semester
Oral Exam	3 <sup>rd</sup> year late Spring semester
Doctoral Committee Meetings	Every 6 months, typically twice yearly
Doctoral Dissertation Defense	4 <sup>th</sup> year and beyond

\*\*If for any reason if any of the deadlines above cannot be met, please communicate this information to the DGS, so that an alternative or an exception can be discussed.

### Coursework Overview

#### Typical Schedule



#### Required Didactic Core Courses (credit hours, semester)

- **PATH 713:** Molecular and Cellular Pathophysiological Basis of Disease (3 credits, Fall)

*A graduate course on cell injury and pathogenesis of disease with emphasis on basic mechanisms at the molecular, cellular, and organismal levels.*

- **PATH 714L:** Molecular and Cellular Pathophysiological Basis of Disease Lab (2 credits, Fall) *A graduate-level laboratory course on basic mechanisms of disease pathogenesis, emphasizing cell and tissue-based examples of major disease mechanisms. Students must be simultaneously enrolled in Pathology 713 or have previously completed that class.*
- **TOXC 749 (formerly TOXC 442):** Biochemical Toxicology (3 credits, Fall) *This course covers biochemical and molecular actions of toxicants and assessment of cellular and molecular mechanisms of adverse health effects. The students are expected to develop a comprehensive understanding of biochemical and molecular changes caused by environmental chemicals and toxicants.*
- **TOXC 707:** Advanced Toxicology (3 credits, Spring) *This course introduces students to the principles and advanced knowledge about cellular and physiological basis of toxicity of environmental chemicals, with emphasis on regulatory toxicology, inhalation toxicology, developmental toxicology, microbiome, radiation toxicology, and neurotoxicology. Students will gain an in-depth understanding of the mechanisms of interactions between environmental agents and living systems from the perspective of systemic toxicology. TOXC 749 is a prerequisite for this course.*
- **A Biostatistics Course:** Typically taken fall semester of the second year, course choice will vary by student's need and research direction; this choice will be informed by discussion with the research advisor and/or the DGS. Select one of the following:
  - BBSP 710: Biostatistics for Lab Scientists (3 credits), *focuses on basic lab statistics and use of GraphPad Prism as a primary analytical software.*
  - BIOS 600: Principles of Statistical Inference (3 credits), *focuses on the underlying assumptions and innerworkings of basic statistical tests used by lab scientists and use of R as a primary analytical software.*
  - BCB 720: Introduction to Statistical Modeling (3 credits), *a more advanced course requiring knowledge of single-variable calculus, familiarity with matrix algebra, and having some programming experience.*

#### Required Skills Development Courses

- **TOXC 722:** CiTEM Weekly Seminar Series (1 credit, Fall and Spring each semester after joining CiTEM) *CiTEM students formally register for this activity during each semester until graduation. This series includes presentations by advanced students (third year and up), postdoctoral fellows, and invited local and national leaders in toxicology.*
- **TOXC 721:** Toxicology Seminar II (1 credit, Fall) *In this course, second year students continue to hone their critical reading and oral presentation skills by focusing on topics of interest to toxicologists in training.*
- **TOXC 821:** Scientific Writing (1 credit, Fall) *Workshops on scientific writing with special emphasis on fellowship applications and the doctoral research proposal. Students work on several written assignments and are expected to complete a draft of their proposals by the end of the semester.*

### Required Semesterly Research Courses (to be taken each semester after joining CiTEM)

For both of the below courses, students must meet with their research advisors at the beginning of each semester to identify research and career development goals, in the form of an individual development plan (IDP). A minimum of 3 research goals and 2 career development goals must be set each semester. The agreed upon goals will be documented by completing an electronic form sent out by the DGS, "CiTEM Semester Goals", through DocuSign. Completed forms are due by the first week of classes, unless otherwise specified by the DGS. Prior to the last week of classes for the semester, students must meet with their research advisors to discuss progress towards agreed upon goals and evaluate performance for the semester. The evaluations will be documented by completing an electronic form sent out by the DGS, "CiTEM Semester Evaluation", through DocuSign. Completed forms are due by the last day of classes, unless otherwise specified by the DGS.

- **TOXC 901:** Research in Toxicology (3-11 credits) Fall and Spring the second year until passing the written qualifying exam.
- **TOXC 994:** Doctoral Dissertation Research (3 credits) after passing the written qualifying exam until graduation.

### Elective Didactic Courses

A minimum of two elective didactic courses (minimum of 3-4 credits total) are to be taken in the area of research concentration. Additionally, these courses are to be taken as needed to maintain full-time status and to supplement knowledge needed for dissertation research or career development. Elective Courses can be taken any time as a graduate student, even beyond Year 3. Note, **this recommended list is not exhaustive**, and other courses can be taken based on student needs or as recommended by the research advisor or DGS.

- **BCB 710:** BCB Colloquium (1 credit, Fall/Spring)
- **BIOL 631:** Advanced Molecular Biology I and II (3-4 credits, Fall or Spring)
- **CBPH 852:** Experimental Physiology of Human Health and Disease I (4.5 credits, Fall)
- **CBPH 853:** Experimental Physiology of Human Health and Disease II (4.5 credits, Spring)
- **ENVR 470:** Environmental Risk Assessment (3 credits, Spring)
- **ENVR 601:** Epidemiology for Environmental Scientists and Engineers (3 credits, Spring)
- **ENVR 630:** Systems Biology in Environmental Health (3 credits, Fall)
- **ENVR 650:** Principles of Chemical Carcinogenesis (2 credits, Spring)
- **ENVR 730:** Computational Toxicology and Exposure Science (3 credits, Fall)\*\*
- **GNET 621:** Principles of Genetic Analysis (3 credits, Fall)
- **GNET 646:** Mouse Models of Human Disease (1 credits, Spring)
- **GNET 647:** Human Genetics and Genomics (1 credits, Spring)
- **MCRO 614:** Immunobiology (3 credits, Fall)
- **PHCO 701:** Introduction to Molecular Pharmacology (3 credits, Fall)

\*\*Highly Recommended

### **Elective Courses Outside of UNC**

Students may take elective courses outside of UNC-CH through the [interinstitutional program policy](#) at UNC Charlotte, UNC Greensboro, North Carolina State University, North Carolina Central University, or Duke University. Students should discuss interinstitutional courses with both their research mentor and the DGS prior to enrollment to ensure that courses meet identified gaps in knowledge and that increased transit times do not interfere with other required activities.

### Maintaining Graduate School Eligibility

As indicated by the [UNC Graduate School Handbook](#), to maintain academic eligibility to continue in graduate school, graduate students must maintain good standing by earning grades of 'H' or 'P' in the majority of classes. Up to 9 credits of 'L' are allowable, however once a student earns 9 credits of 'L' in a course, they will be deemed academically ineligible by the Graduate School and will be unable to continue in their degree granting program. Similarly, if a student earns a grade of 'F' in any course, regardless of credit numbers, they will be deemed academically ineligible by the Graduate School and will be unable to continue in their degree program. Please see the Graduate School Handbook linked above for more detail. If a student is at risk of an 'L' or an 'F' in a course, they should reach out to the instructor and the DGS for additional resources to ensure success as soon as possible. Additional resources may include but are not limited to the [UNC Writing Center](#) and [coaching through the Initiative for Maximizing Student Development \(IMSD\)](#).

### Maintaining Full Time Status

It is important to always maintain full-time status as a graduate student throughout the pursuit of your doctoral degree, especially if you are currently deferring student loan payments. To maintain full-time status, you must be registered for at least 9 credit hours prior to passing your written exam (taken at the end of your 2<sup>nd</sup> year). If required and elective didactic course credit hours do not equate to 9 hours, you can increase the credits within TOXC 901 to equal 9 credit hours. Enrolling in greater than the standard 3 credit hours of TOXC 901 assumes that you will be spending more time conducting research in your lab due to increased available time not spent in didactic coursework. Per federal regulations, it is assumed that each credit hour enrolled assumes approximately 3 hours' worth of work each week. Therefore, by registering for 3 credits in TOXC 901, this assumes approximately 9 weekly hours of research in the lab. Any registration for TOXC 901 of more than 3 credits should be discussed with the DGS to ensure students stay on track to meet course requirements.

If you have passed your written exam, full time status can be attained by registering for 3 credit hours of TOXC 994.

### Procedures for Course Substitutions

If students are interested in substituting a required CiTEM course for a different course, they should email the DGS at least one month prior to the start of the semester. The email request should include rationale for the course substitution and provide an attached copy of both course syllabi to facilitate comparison of course objectives. The DGS will review the provided materials and make a decision on the course substitution.

## 1<sup>st</sup> Year - Joining CiTEM

### Checklist

- Identify PIs you are interested in rotating with for the Fall, Winter, and Spring rotations.
  - Select PIs who are either affiliated with CiTEM or are conducting research related to toxicology or environmental medicine to join CiTEM
- Enroll in classes:
  - Required both Fall and Spring: BBSP 901, BBSP 902
  - Optional both Fall and Spring: TOXC 722, Elective Courses.
- Utilize knowledge and advice obtained in First Year Group to choose your dissertation lab.
- Prepare to apply for NC residency (see below for [more details](#)).
- Present your rotation research in your chosen lab and at research conference(s).
- Cultivate professional skills relevant to career of interest.

### Coursework

#### Required Classes:

- **BBSP 901:** Research in Biological and Biomedical Sciences (3 credits, both semesters)
- **BBSP 902:** Seminar in Biological and Biomedical Sciences (0.5-4 credits, both semesters)
- **PATH 713:** Molecular and Cellular Pathophysiological Basis of Disease (3 credits, Fall)
- **PATH 714L:** Molecular and Cellular Pathophysiological Basis of Disease Lab (2 credits, Fall)

#### Optional:

- **TOXC 722:** CiTEM Weekly Seminar Series (1 credit, both semesters)
- Elective Didactic Classes from [list](#) above

### Finding Rotations and Choosing a Lab

BBSP students will rotate through three labs during their first year. At the end of the first year, students will select both a lab and program (e.g., CiTEM) to join for their PhD. Students interested in joining CiTEM may choose to rotate with [CiTEM-affiliated faculty](#) or to rotate with faculty who are not affiliated with CiTEM but whose research is related to toxicology or environmental medicine. If a CiTEM student wishes to join a non-CiTEM-affiliated faculty member's research group, that faculty member will need to affiliate with CiTEM ([see above for procedure](#)).

BBSP guidelines and expectations related to rotations can be found [on the BBSP website](#). BBSP also provides extensive guidance regarding rotations during orientation week and throughout the First Year Group class.

Selection of rotation labs is highly personal and depends on the student's research interests, preferred mentoring style, and preferred lab size/environment. In general, CiTEM recommends that first-year students begin setting up their first rotation towards the end of the summer before starting their first year. Some students may also wait until arriving at UNC-CH to set up their first rotations; however, coordinating rotations earlier is recommended to secure rotation slots. If a student is interested in rotating in a NIEHS or EPA lab, CiTEM recommends that students reach out to PIs early (late summer/early fall). Extra time is required to obtain clearance and badge access to these facilities. Winter and Spring rotations are ideal if you plan on working with a PI

at NIEHS or EPA, although you will want to start planning in the Fall. For on-campus rotations, students may wish to wait until partway through each rotation to select the next rotation based on what the student learns about their research interests or working style throughout the year. However, if there is a very specific lab of interest, planning a Spring or Winter rotation ahead of time may be needed. If you are having trouble identifying rotation mentors or would prefer suggestions, please reach out to the Program Director or the DGS.

### Suggested Items for Discussion with PI to Align Expectations

As you are exploring rotation labs, you should have an open conversation with the PI and other members of the lab about the following:

- **Research topic.** Ask the PI if there is an existing project that they are looking for a student to work on, or if you would cultivate your own project. Discuss what previous students have studied and future topics the PI is interested in exploring. You may want to ask the PI to recommend literature to get a grasp on the research area. Also, establish whether your day-to-day mentor will be the PI or another lab member.
- **Expectations for rotation students.** It is important to discuss assumed working hours/time working each week and work-life balance in the lab you are considering joining. Ask what hours other students typically work, whether there is work hour flexibility, and don't forget to discuss assumptions about working in the evenings, on weekends, and/or remotely. Discuss procedures for requesting time off. It is also important to discuss your mentor's thoughts on time for training opportunities and professional development activities outside of the lab (should this be within or outside lab working hours). Be sure to communicate your own preferences so that expectations/assumptions can be aligned.
- **Methods and frequency of communication.** You should inquire about the frequency of meetings with the PI and/or research group. Also discuss whether the PI and lab members prefer to communicate via email, phone, or other platforms like Slack or Teams. Do your best to be respectful of others' preferences and communicate in a way that will be most effective for everyone.
- **Funding for graduate students.** Consider asking how many students the lab currently has funding for, and you may also ask how many students the lab is planning to rotate. You may also consider asking whether graduate students are expected to write grants or apply for fellowships to fund their research projects.
- **Career interests and trajectories.** You should discuss what type of careers you may be interested in with your PI. Consider discussing what kinds of careers previous members of the group have pursued. You can ask for contact information of previous members of the research group, whom you may consider asking about the lab environment, the mentorship style of the PI, and how this training environment prepared them for the next steps in their career.

After joining your thesis lab, you should revisit the topics listed above and how these expectations change now that you are a member of the lab. In addition, you should discuss the following:

- **Research activities.** You should discuss the first steps of your dissertation research, planning a few experiments or research goals to pursue over the summer. You may also consider discussing didactic courses that may be beneficial to your research project.
- **Meetings.** Plan regular meetings with your PI and/or day-to-day mentor and establish how frequently lab meetings occur. In addition to planning regular meetings, discuss how

time during meetings will be allotted and meeting content (i.e. should the mentee send an agenda each week, will research/career development/class progress be discussed each time, how will feedback be delivered, etc.).

- **Laboratory procedures.** You should discuss purchasing procedures and the use of core facilities, as well as who in the lab is in charge of approving purchases and placing orders. You may also discuss methods of sharing data with the PI and other members of the lab, lab organizational procedures (i.e. sample labeling, lab notebooks, file naming, etc.), and procedures for writing and reviewing grants or manuscripts within the group.

### **Funding & Fellowships for Graduate Students**

While stipends and research expenses are covered by BBSP, CiTEM, or your PI, it is extremely helpful for your lab to attain your own funding. In addition, successfully receiving funding or a fellowship for your PhD often provides you with travel money, research support, and networking opportunities. It also looks great on your CV, no matter what career path you decide to take following graduate school. However, it is important to decide early on in your graduate school training if you want to apply for one of these fellowships, as you may be ineligible to apply later in graduate school. Graduate students in the biomedical sciences are eligible to apply to the fellowships listed below with some details. The fellowship websites and DGS should have more information about students that have been awarded in the past. Students are encouraged to reach out to current and former toxicology graduate students who have been awarded some of these fellowships.

#### **National Science Foundation Graduate Research Fellowship (NSF GRFP)**

This program provides up to three years of stipend support throughout graduate school. Applicants are eligible if they are in their first year of graduate school and do not have a master's degree. The application is typically due in early October and more information can be found on the [NSF GRFP website](#).

#### **National Defense Science and Engineering Graduate Research Fellowship (NDSEG)**

The three-year fellowship program is to support current PhD candidates that are pursuing research that aligns with the interests of the Department of Defense (DoD). The NDSEG fellowship will pay the fellow's full tuition and fees and will provide stipend and health insurance support. Applicants must be within their first two years of graduate school to apply for this fellowship. More information can be found on the [NDSEG website](#).

#### **Howard Hughes Medical Institute Gilliam Fellowship Program**

The Gilliam Fellows Program provides support to both graduate students and their PIs during the student's PhD program. Applicants must co-submit an application with their PI which must be reviewed and approved by the UNC-CH graduate school before applying to the program. Students must be 2<sup>nd</sup> or 3<sup>rd</sup> year graduate students to apply for this fellowship. More information can be found at the [HHMI Gilliam Website](#).

#### **Department of Defense Science, Mathematics, and Research for Transformation (SMART)**

The Science, Mathematics and Research for Transformation (SMART) Scholarship-for-Service Program is an opportunity for students pursuing an undergraduate or graduate degree in STEM disciplines to receive a full scholarship, stipend, and employment by the DoD. Awardees receive

full tuition, stipend, internships, and guaranteed employment after graduation. Applicants can apply at any time during graduate school but must work for the DoD for the number of years the scholarship was used. More information can be found on the [SMART website](#).

### **Ruth L. Kirschstein Predoctoral Individual National Research Service Award (F31)**

The F31 provides financial support for doctoral students. In addition, there is a separate F31 application that is used to enhance diversity in the scientific workforce. The materials and application will be the basis of the grant writing class that CiTEM doctoral students take during their third year of graduate school. More information can be found on the [NIH F31 website](#).

### **PhRMA Foundation Predoctoral Fellowship**

The PhRMA Foundation Predoctoral Fellowship provides stipend support for 12, 18, or 24 months to doctoral students who are pursuing research in drug discovery, drug delivery, translational medicine, and value assessment & health outcomes. More information can be found on the [PhRMA website](#).

### **American Heart Association (AHA) Predoctoral Fellowship**

The American Heart Association Predoctoral Fellowship provides tuition and stipend support to doctoral students that are pursuing cardiovascular or cerebrovascular research. Applicants can apply for this fellowship at any time during their graduate school training. More information can be found on the [AHA website](#).



## 2<sup>nd</sup> Year

### Checklist

- Apply for NC residency (see below for [more details](#)).
- Discuss expectations and progress with PI.
- Enroll in classes:
  - In the Fall, TOXC 901 (at least 3 credits), TOXC 722, TOXC 749, and TOXC 721.
  - In the Spring, TOXC 901 (at least 3 credits), TOX 722, TOXC 707, and relevant elective didactic course(s).
- Ensure you are registered for at least 9 credit hours of courses to maintain full-time status. If the sum of the credit hours for didactic courses and at least 3 hours of TOXC 901 do not equal 9 credits, increase the amount of TOXC 901 credits enrolled to equate 9.
- Present research at conference(s).
- Present research at the CiTEM retreat.
- Cultivate professional skills relevant to career of interest.
- By March, work within the cohort to identify a 5-day period for written qualifying exam after the last final exam ([see more details below](#)).
- Meet with Written Qualifying Exam Committee Chair to go over exam proceedings and schedule the exam.
- Take Written Qualifying Exam.
  - Once the Written Qualifying Exam is passed, obtain the Written Qualifying Exam Committee Chair's signature on Part I of the [Doctoral Exam Report Form](#) and submit it to the DGS and Business Services Coordinator
- Brainstorm specific aims for the dissertation research with the guidance of the research advisor(s) at the end of the 2<sup>nd</sup> year, as you will use these aims to construct the first draft of your dissertation proposal in TOXC 821 (Fall 3<sup>rd</sup> year).

### Coursework

#### Required Classes

- **TOXC 722:** CiTEM Weekly Seminar Series (1 credit, both semesters)
- **TOXC 901:** Research in Toxicology (3 credits, both semesters)
- **TOXC 749:** Biochemical Toxicology (3 credits, Fall)
- **TOXC 721:** Toxicology Seminar II (1 credit, Fall)
- **TOXC 707:** Advanced Toxicology (3 credits, Spring)

#### Optional:

- Elective Didactic Classes from [list](#) above

### Suggested Items for Discussion with PI to Align Expectations

- **Meetings.** Is the established schedule working? Consider discussing the frequency of meetings to ensure you're meeting enough but not too much. It is also important to discuss what is expected at each meeting, and the goals you're trying to accomplish by meeting.
- **Coursework.** Consider asking your PI for recommendations. Discuss the expectations in balancing class and schoolwork. Communicate your schedule and course load for the semester and come to an agreement on lab expectations. The second year tends to have the heaviest course load which can be difficult to juggle while adjusting to being in your dissertation lab full time.

- **Writing collaborations.** Regarding grants and papers, it is important to establish a workflow for collaboration. This includes establishing good methods of communication and a standard accepted workflow. Consider discussing how your PI prefers to work on writing, including online programs for edits. There is a plethora of online resources for writing, but your PI may have preferred programs or tips and tricks for the most efficient writing.
- **Conferences/meetings.** Inquire about the lab procedures for attending meetings, including cost logistics. Consider asking your PI or other members of the lab what meetings are regularly attended by the lab and if they have any suggestions or expectations for you to attend.
- **Career development.** Consider discussing career goals again, as they may have changed, and inquire about ways your PI may be able to assist you in career development.
- **Building your UNC network.** As you begin to form your thesis project, it can be helpful for you to be introduced to relevant professionals in your field. Consider asking your PI to connect you with colleagues who might be helpful for your project and may be good to have on your committee.
- **Specific aims.** Towards the end of your second year as your project solidifies, discuss with your PI the plan for your specific aims. This is needed for TOXC 821, which you will take in the Fall of the third year.

### **SOP for Doctoral Written Qualifying Examination**

**Purpose:** The Doctoral Written Examination represents an important decision-making tool for the faculty. The goal of this examination is to evaluate the student's potential to continue making satisfactory progress toward a potential PhD. This examination evaluates:

1. level of knowledge in toxicology and allied fields;
2. ability to apply this knowledge toward solving problems;
3. competence to evaluate critically and interpret experimental data;
4. aptitude to research a topic, raise a hypothesis and design experiments to test it; and
5. command of scientific writing skills.

**Scheduling:** Graduate students pursuing a PhD must take the Doctoral Written Examination upon completion of the required coursework, usually at the end of the second year of training. The examination is administered once each year and lasts for 5 days. It is up to the 2<sup>nd</sup> year graduate student cohort that is taking the examination to communicate with each other and identify a 5-day block in late May or early June that works best for the cohort. Once the cohort has agreed on the timing, they must email the Written Qualifying Exam Chair about the chosen dates. Commonly, the examination is administered on a Monday and needs to be turned in by Friday at 5pm. However, this is flexible as some cohorts may prefer the written examination to extend over a weekend. The written examination must be completed and graded before starting classes in the Fall, so that students can register for the appropriate research credit course based on newly obtained PhD Candidate status. It is recommended that the cohort reaches out to the Written Qualifying Exam Chair early in the Spring semester (e.g. February/March) to set up a meeting with the entire cohort to further discuss the format and clarify any questions that the students may have.

**Scope of Exam Questions:** The examination will test for broad and basic understanding of the field of toxicology and evaluate the student's aptitude for research. It is anticipated that

questions will commonly reflect (i) important concepts in toxicology, potentially including the request to design experiments to solve hypothetical experimental problems, or (ii) the presentation of a limited experimental protocol and observed results and the request for critical analysis of the approach and data. The scope of the questions will cover different aspects of toxicology that all enrolled students should have already mastered, regardless of the chosen area of dissertation research. Questions will not be limited to the courses completed by the students.

Faculty members will be requested to submit questions for this yearly examination, together with the outline of an appropriate answer. The PIs of students who are taking the qualifying exam will be excluded from providing a question. The Written Examination Committee, chaired and assembled by the Written Qualifying Exam Chair, will review the questions for content and fairness, then assemble and administer the examination.

**Exam Question Format:** The Toxicology Doctoral Written Examination will include 5 or more questions and be completed in 5 days. Each student will select and answer 4 of these open-book questions. The students will be allowed to consult class notes, library resources, and reliable websites; hence, any reputable source of scientific information at their disposal, EXCEPT consultation with other students or faculty. The students will be bound by the UNC-CH honor code to complete the take-home exam on their own and to properly reference all sources of information that were used in composing their answers. Appropriate scientific sources (e.g. peer reviewed articles) should be utilized as references for this exam. Please include a references section under each question. **Use of generative artificial intelligence (AI) is only acceptable for revising and polishing the document** (see [student guidelines on AI from UNC](#)). If generative AI is used, an attestation with the name of the tool used and information on how you edited the output must be provided at the bottom of each question where used prior to listing references (e.g. "I attest that I made use of AI in the following ways: ...", and a copy of the conversation with the generative AI must be provided as an additional attachment.

**Exam Administration:** The Written Qualifying Exam Chair will send the assembled questions to the Business Services Coordinator, who will email the questions to the 2<sup>nd</sup> year cohort at 8:00am the morning of the agreed upon date of the examination period. Students should work on the exam independently until 5pm on the last day of the agreed upon examination period. All answers to exam questions should be turned in by 5pm on the last day of the agreed upon examination window to the Student Services Coordinator via email. If any questions are turned in past the 5pm deadline, they will receive a 0% grade automatically. Students should review all the questions on the first day and correspond with the Written Qualifying Exam Chair if clarifications are needed, so that the Chair has sufficient time to ask about details with the question author. Any accommodations needed for exam administration should be coordinated through the Accessibility Resources and Service ([ARS](#)) office and communicated to the Written Qualifying Exam Chair and Business Services Coordinator.

**Exam Grading Scale:** Each question will be evaluated on a percentage scale, with 70% set as the minimum passing grade. A minimum grade of 70% must be obtained on each question that is answered. See the results section below for more information.

**Grading Guidelines:** The following criteria are recommended to the faculty to establish uniformity in exam grading. In assigning final grades, time limitations and the specific features of each question should also be considered.

Two CiTEM faculty members will be assigned to independently grade all answers to a specific question. The Exam Committee will strive to pair exam graders with questions that align with their individual expertise. The final grade a student will receive for each answer will be an average of the two scores. If the two independent scores vary significantly, especially if they fall on each side of the minimum passing grade (70%), the Chair of the Written Examination Committee will meet with the two faculty graders to evaluate the reasons for the discrepancy in the grades. If necessary, a third grader will be recruited to help eliminate any grading ambiguities. The final grade assigned to a specific answer will reflect the quality of the answer to the question and provide a clear assessment of whether the student passed or failed the exam question as per the rubric below.

**Grade**

- 92-100%:** Clear mastery of the subject of the question; precise and concise organization; depth and scope of discussion ideally suited to the question; if applicable, some evidence of creative insight and an ability to deal with controversies and reservations.
- 81-91%:** Facts are accurate; evidence of reasonable depth of knowledge; evidence that the major issues involved are clearly understood; well-organized; answer contains a judicious selection of available facts.
- 70-80%:** If factual errors are present, these are minor; major issues are covered but not in depth; satisfactory organization.
- 51-69%:** Several factual errors; superficial coverage of the area; coherent but weak organization; although the answer is partially correct, it lacks accuracy and completeness.
- 31-50%:** Evidence of major gaps in the area; organization so poor that the answer may be difficult to follow; clear evidence of misunderstanding of major issues.
- 0-30%:** Clearly demonstrates no understanding of the subject.

**Results:** There are three potential outcomes from the Written Qualifying Exam: Pass, Conditional Pass, and Fail. Details for each outcome are described below.

**Pass:** Students receiving a grade of at least 70% in each of the 4 answered questions will pass the Doctoral Written Examination. Students should then complete required information in Part I of the [Doctoral Exam Report](#) Form and send the form to the Chair of the Written Exam Committee for signature and copy the DGS and the Business Services Coordinator for submission to the Graduate School.

**Conditional Pass:** A student who fails ONE individual question (25% of the exam), but receives an average of at least 70% over the four answered questions will receive a conditional pass. Upon receiving a conditional pass, the standard operating procedure includes the following:

1. The student should schedule a meeting through the Written Qualifying Exam Chair with the author of the exam question.
2. At the meeting, with both the Written Qualifying Exam Chair and the question author present, the shortcomings of the failed answer should be discussed with particular focus on the content which is missing or incorrect. At the end of the meeting, a new 5-day exam period should be agreed upon by all parties present, so that the student can address the reviewed shortcomings through answering a new question.
3. The author of the failed question will then provide a new question to the Written Qualifying Exam Chair to be answered in the same subject area.

4. Similar to the exam administration section above, the Chair will send the question to the Business Services Coordinator, who will email the question to the student at 8am on the morning of the beginning of the exam period. The completed question will be turned in at 5pm on the last day of the exam period to the Business Services Coordinator. The new question must be completed and graded by the beginning of the Fall semester.
5. The question will then be graded as above. If the student achieves 70% or above on the question, they will pass the examination. If the student achieves below 70% on the question, the student will fail the exam (see below for more details).

*Fail:* A student who receives grades lower than 70% on TWO questions (50% of the exam) or more will fail the Doctoral Written Examination. A student who fails this examination will be allowed to take it again the following year. A student who fails the Doctoral Written Examination after two attempts becomes ineligible to continue in the program.

*Retaking the doctoral written exam:* After failing the Doctoral Written Exam, the student should have a serious discussion with their PI and CiTEM Leadership about whether or not they would like to continue pursuing a PhD. If a student prefers not to continue pursuit of a PhD, they can discuss the option to either immediately withdraw from the doctoral program or finish with an MS (see below for more detail). In the case where the student decides to continue pursuit of a PhD, the student's advisor(s) (and other faculty, upon request by the student) will work closely with the student throughout the intervening year on a program to eliminate the deficiencies identified during the Doctoral Written Exam (for example, assigning and grading new or previous exam questions). Advisors may also recommend other assistance, such as working with the UNC Writing Center or pursuing coaching through IMSD, though ultimately it is the responsibility of the student to follow up on these recommendations.

Failing to pass the Doctoral Written Exam for a second time results in the automatic dismissal of the student from Graduate School. Petition for re-instatement would have to follow the procedures dictated by the Graduate School (<http://www.gradschool.unc.edu/pdf/wrenstmt.pdf>).

*Withdraw from the doctoral program:* Students who fail the Doctoral Written Exam one time will have the option to immediately withdraw from the doctoral program or can petition the program for permission to complete the MS degree requirements. The DGS and the research advisor will be available to help each student with this decision. Ultimately the decision will be influenced by the actual performance of the student in the completed coursework and ongoing laboratory research, as well the overall perceived scientific acumen. The MS degree requirements include forming a committee of at least 3 faculty members (including the PI) in CiTEM who are regular or fixed-term faculty, writing a thesis, and completing a public presentation on the completed thesis and a private oral defense of the thesis. The DGS will provide more details on the MS process if this decision is made.

## 3<sup>rd</sup> Year

### Checklist

- Discuss expectations and progress with PI
- If you have passed your qualifying exam, register for TOXC 994 for 3 credit hours to ensure full time status during both semesters. If you have not passed your qualifying exam, enroll in TOXC 901 and ensure you are registered for at least 9 credit hours of courses to maintain full time status. If the sum of the credit hours for didactic courses and at least 3 hours of TOXC 901 do not equal 9 credits, increase the amount of TOXC 901 credits enrolled to equate 9.
- Enroll in TOXC 722 (Seminar in Toxicology and Environmental Medicine) for both semesters and TOXC 821 (Scientific Writing) in the Fall.
- Present research at conference(s).
- Present research at the CiTEM retreat.
- Cultivate professional skills relevant to career of interest
- Present research in TOXC 722
- Form the Doctoral Dissertation Committee following guidance received in TOXC 821 and [outlined below](#) by early Spring semester.
  - Complete Part I of the [Report of Doctoral Committee Composition](#) form and submit it to the DGS and Business Services Coordinator
- Schedule a brief Meet-and-Greet meeting (~1hr) with your Doctoral Dissertation Committee by early Spring to introduce them to your research questions.
- Write the Dissertation Proposal.
- Schedule a 2-hour block for the Oral Qualifying Exam at the end of the Spring semester. All Dissertation Committee members must attend ([see link below for specifics](#)).
- Complete the Oral Qualifying Exam.
  - Complete Part II of the [Report of Doctoral Committee Composition](#) form and submit it to the DGS and Business Services Coordinator
  - Complete Part II of the [Doctoral Exam Report](#) form and submit it to the DGS and Business Services Coordinator

### Coursework

#### Required Classes

- **TOXC 722:** CiTEM Weekly Seminar Series (1 credit, both semesters)
- **TOXC 901/994:** Research in Toxicology/Doctoral Dissertation Research (3 credits, both semesters)
- **TOXC 821:** Scientific Writing (1 credit, Fall)

**Optional:** Elective Didactic Classes from [list](#) above

### Suggested Items for Discussion with PI to Align Expectations

- **Meetings.** Is the established schedule working? Consider discussing the frequency of the meetings to ensure you're meeting enough but not too much. It is also important to discuss what is expected at each meeting, and the goals you're trying to accomplish by meeting.
- **Communication.** Discuss methods and frequency of communication and evaluate if there is a need for any changes or improvements.

- **Career development.** Inquire about ways your PI may be able to assist you in career development. Communicate your expectations and needs to meet your career goals. Third year is a good time to consider discussing the possibility of an internship or other external opportunities if that aligns with your goals.
- **Graduation Requirements.** Review what is needed for graduation and discuss your project. Determine if you are on track to graduate and if not, discuss what changes are needed to facilitate your success.
- **Writing collaborations.** Consider evaluating the process of writing together. Discuss what has been working well and any improvements to the process for both grants and papers.
- **Committee members.** Begin discussions about your committee. Work together with your PI to establish the members and chair.

### **Doctoral Dissertation Committee**

**Purpose:** The primary purpose of a dissertation committee is to evaluate the student's progress, preparation, and competence in carrying out original research projects. They will also play a role in deciding whether the breadth and depth of the chosen research progress is sufficient to merit a PhD in Toxicology through the proposal defense and its ultimate approval. The committee is also charged with providing advice during the conduct of the dissertation research. This advice can come in many forms, including but not limited to: proposals of new or alternate experiments, methods that may benefit the project, ideas for sources of supplies/reagents/tissues/data, consultations on statistical assessments, making connections with peers and colleagues, and suggestions for career development and networking. Committees also can provide recommendations on appropriate elective courses or activities to address gaps in knowledge or deficiencies in preparation that are apparent during the oral qualifying exam or during development of the dissertation research. The committee is also charged with approving the Dissertation Defense, both the oral and written components. When needed, the committee can also help to mediate differences between the primary research advisor and the student, as needed.

**Choosing Members for the Doctoral Dissertation Committee:** The Committee should be composed of 5 members of the Graduate Faculty, including the dissertation advisor(s). A majority of each committee should be members of CiTEM. Committee members can be added to CiTEM to meet the majority requirement if they are not already members. A majority of each committee should be regular members of the Graduate Faculty; the remaining members of the Committee may be regular members or fixed-term members. Regular members of the Graduate Faculty are full-time, tenured or tenure-track faculty members of UNC-CH or those nominated based on their educational record and research expertise (special/appointed regular graduate faculty). Fixed-term members of the Graduate Faculty are usually persons holding non-tenured track, research or clinical appointments at UNC-CH, adjunct faculty, or other scientists with expertise in the area of the dissertation research. Students can look up [faculty designations on the UNC website](#). Scientists with off-campus laboratories who are faculty affiliates of the CiTEM are also appointed as fixed-term members of the Graduate Faculty. In addition, scientists from other non-educational organizations or faculty members from other Universities can also be appointed to serve on the committee of a specific student. These fixed-term appointments are sometimes necessary because the appointee brings valuable experience in the area of the dissertation research that is not represented among the other committee members and complements the overall expertise of the committee.

**Choosing a Committee Chair:** The Committee Chair must be a CiTEM member who is familiar with the student's research area. They must also be a regular member of the Graduate Faculty. The Committee Chair may not be the student's primary mentor. Responsibilities of the Committee Chair include:

- Implementing the guidelines of the CiTEM.
- Advocating for research and career development pursuits that are in the best interest of the student in their pursuit of a PhD and future career in Toxicology.
- Serving as the primary contact for mediation of any conflict between the student and mentor.
- Moderating the student's first oral examination by the doctoral committee and follow-up discussions to determine the outcome of the doctoral qualifying oral exam and final evaluation of the doctoral research proposal.
- Supervising the signing by all committee members of the [Report of Approved Dissertation Project](#) form and sign on the behalf of the committee in Part II of the student's [Doctoral Exam Report Form](#), which records the outcome of the doctoral qualifying oral exam and submitting the forms to the DGS and the Business Services Coordinator .
- Communicating regularly with the doctoral student and helping enforce the recommendation for regular committee meetings (once every 6 months) during the development of the doctoral research project, including completing the [CiTEM Committee Meeting Guide and Progress Report](#) form at each committee meeting and sending it to the DGS.
- Moderating the student's dissertation defense and final oral exam, supervising the signing of Parts III and IV of the student's [Doctoral Exam Report Form](#), and submitting the completed form to the DGS and Business Services Coordinator .
- Certifying that edits suggested by the committee have been incorporated and the final dissertation document is approved for electronic submission to the Graduate School.

**SOP for Forming a Committee:**

1. Make a list of potential members of the Doctoral Dissertation Committee in consultation with your research advisor(s) and identify nominees for Committee Chair. The student's research advisor is not eligible to chair the doctoral committee. **Note, this will be completed as an assignment in TOXC 821 during the Fall Semester of the 3<sup>rd</sup> year.**
2. Meet with the DGS to review the suggested committee composition for compliance with Graduate School requirements (see below) and the nominee to chair the committee (this nominee must be a regular member of the UNC-Chapel Hill Graduate Faculty).
3. Contact each member of the proposed Doctoral Dissertation Committee inviting them to participate in the doctoral committee. Give them a brief description of your research and why you think they would add value to your committee. You may consider scheduling a one-on-one meeting and sending your Specific Aims or CV if you aren't acquainted with the committee member. If you are acquainted with the potential committee member, an email inquiry would likely suffice.
4. Inform the DGS of the willingness of the invited members to participate in the student's committee (or to discuss potential replacements, if necessary), so that the composition of the Doctoral Dissertation Committee can be finalized, including the identification of the Chair of the Committee.
5. Once the DGS has given approval of the committee composition, complete the [Report of Doctoral Committee Composition](#). Send the completed form to the DGS for signature, then submit the form to the Business Services Coordinator for submission to the Graduate School.



**Required Meetings with the Dissertation Committee:** At each committee meeting, the student should discuss the dissertation research and progress towards career development with the committee members. Each meeting should begin with the research advisor(s) meeting with the committee members without the student being present to discuss progress toward degree and career development, potential identified deficiencies in expertise or training, and status of the mentor/mentee relationship. The student should then meet with the committee members without the research advisor(s) being present to provide the student perspective on the items listed above. This facilitates open (non-coercive) discussion about potential issues between the mentor and mentee or particular areas that the committee can be helpful in navigating progress towards degree.

It is expected that all committee members be present during each of the below meetings. Committee members should preferably attend in-person; however, if needed, committee members can attend virtually via videoconference. In case of emergency, meetings can be recorded and reviewed by committee members asynchronously. **Prior to recording, please let the CiTEM Leadership team know.**

**Initial meet-and-greet:** The first committee meeting may take place in the late Fall or early Spring of the 3<sup>rd</sup> year, and the primary purpose is to get acquainted (introducing yourself to your committee and introducing your committee members to one another) and to provide an overview of your dissertation project. Suggestions for improvements and modifications of the research proposal from the committee will be very helpful in completing the written proposal and preparing for its defense during the Oral Examination.

**Oral Examination:** The student will present and defend the Dissertation Proposal, answering scientific questions from the Dissertation Committee, who will gauge the student's understanding of the proposed research. More information about the Oral Examination is provided below.

**Regular Committee Meetings:** The student will meet with the Doctoral Committee for the Oral Examination (information below) and continue meeting with them at least once every 6 months (twice yearly) as they continue their dissertation research, and once again for the Final Dissertation Defense.

**Final Dissertation Defense:** The student will present and defend the Dissertation in a public session. Then, in a private session, the student will answer scientific questions from the Dissertation Committee, who will gauge the student's understanding of the completed research.

## **Oral Exam**

**Purpose:** The Oral Examination is conducted with the student's Doctoral Dissertation Committee and includes the defense of the student's written dissertation proposal. The Doctoral Oral Examination occurs after passing the Doctoral Written Examination. It should take place during the Spring semester of the 3<sup>rd</sup> year of training.

### **Preparing for the Exam:**

1. Brainstorm a draft of the specific aims for the dissertation research with the guidance of the research advisor(s) at the end of the 2<sup>nd</sup> year.

2. Organize and/or complete preliminary studies supporting a scientific hypothesis and the feasibility of the selected approaches.
3. Register for TOXC 821 (Scientific Writing) during the Fall semester of the 3rd year. This course will guide the students in writing the Dissertation Proposal document in the format of an F31 grant proposal.
4. Revise the first draft of the Dissertation Proposal developed in TOXC 821 with feedback from the advisor and finalize the document.
5. Schedule the doctoral Oral Examination for a date/time agreed upon by ALL members of the committee. This date must be within a semester for which the student is registered in TOXC 994 and typically occurs in Spring of the 3<sup>rd</sup> year.
6. Inform the DGS and the Business Services Coordinator of the date of the Oral Examination.

**Note: Use of generative artificial intelligence (AI) is only acceptable for revising and polishing the Dissertation Proposal Document** (see [student guidelines on AI from UNC](#)). If generative AI is used, an attestation with the name of the tool used and information on how you edited the output must be provided at the bottom of the document prior to listing references (e.g. "I attest that I made use of AI in the following ways: ..."). A copy of the conversation with the generative AI must be provided as an additional attachment to the committee.

#### **Completing the Oral Examination:**

1. Once the written proposal is judged complete by the research advisor, the document should be distributed to all committee members at least 2 weeks prior to the date scheduled for the doctoral oral examination.
2. At the day of the examination, the student presents the proposal to the committee in a seminar format (30-45 min) and answers questions posed by committee members. In addition to a discussion of the dissertation proposal, the examination questions may include all other aspects of toxicology.
3. Immediately following this examination, the committee will decide:
  - Whether the student has passed or failed the doctoral oral examination
  - Whether or not the doctoral research proposal is acceptable
4. Committee decisions must then be recorded in appropriate forms. The signed forms must be returned to the Business Services Coordinator and DGS.
  - Part II of the [Report of Doctoral Committee Composition](#) form
  - Part II of the [Doctoral Exam Report](#) form
5. The Doctoral Dissertation Committee will recommend appropriate actions in case the student fails the doctoral oral examination and/or the proposal is judged incomplete or unacceptable. Actions recommended by the committee may include but are not limited to: taking additional courses in areas of deficiencies, revisions on the dissertation proposals, additional writing assignments to gain needed expertise, and/or halting pursuit of a PhD and completing requirements for a MS.

#### **Dissertation Research Project**

Once the student has passed the doctoral qualifying oral examination and received approval for the selected project, they should focus on carrying out the dissertation research project. The main responsibilities include:

- Participating in regular meetings with the research advisor to discuss ongoing research, including establishing semesterly research goals and evaluating progress towards established goals ([see above for more detail on the formal CiTEM mandated goal setting and evaluation process](#)).

- Progressing through planned experiments defined in the Dissertation Proposal and any other experiments deemed necessary by the advisor and/or the committee.
- Scheduling regular meetings with the Doctoral Committee.
- Presenting doctoral research results at scientific meetings.
- Writing and publishing papers in peer-reviewed journals.

*Students should strive to report their research findings as soon as they complete a publishable body of data; careful planning of the dissertation proposal and adoption of a strategy for its stepwise development are keys to fostering the preparation and submission of manuscripts for publication during the period of graduate training. These publications are then used as separate chapters of the PhD dissertation. There are significant advantages to publishing research in peer reviewed journals as it is completed. These advantages include reducing amounts of writing at the end of the PhD journey, freeing up time which can be used for job searches and reducing likelihood that committee members will ask for additional experiments as the work has already been peer reviewed.*

## 4<sup>th</sup> Year to Graduation

### Checklist

- Take TOXC 994 (3 credits) each semester and progress in independent research
- Take TOXC 722 each semester until graduation
- Present research in TOXC 722 each year
- Present research at conference(s) each year
- Present research at the CiTEM retreat each year
- Discuss expectations and progress with PI each year
- Meet with Committee once per semester
  - At each meeting ensure that the Committee Chair completes the [CiTEM Committee Meeting Guide and Progress Report](#) form and that you sign the form for submission to the DGS and Business Services Coordinator
- Cultivate professional skills relevant to career of interest
- Write dissertation\*
- Defend dissertation\*
  - Complete Part III and IV of the [Doctoral Exam Report](#) form and submit it to the DGS and Business Services Coordinator
  - Complete the [Program Certification of Degree Requirements](#) form and submit it to the DGS and Business Services Coordinator

\*See below for detailed guidelines regarding the dissertation defense process and dissertation structure

### Coursework

#### Required Classes

- **TOXC 722:** CiTEM Weekly Seminar Series (1 credit, both semesters)
- **TOXC 994:** Doctoral Dissertation Research (3 credits, both semesters)

*Although students do not typically enroll in additional coursework once they have progressed to candidacy, students are free to enroll in additional [elective courses](#) as needed to fill knowledge gaps.*

### Suggested Items for Discussion with PI to Align Expectations

- **Meetings.** Is the established schedule working? Consider discussing the frequency of the meetings to ensure you're meeting enough but not too much. It is also important to discuss what is expected at each meeting, and the goals you're trying to accomplish by meeting.
- **Communication.** Discuss methods and frequency of communication and evaluate if there is a need for any changes or improvements.
- **Writing collaborations.** Consider evaluating the process of writing together. Discuss what has been working well and any improvements to the process for both grants and papers.
- **Requirements for graduation.** Revisit what is needed for graduation and discuss your timeline. Determine if you are on track to graduate and if not discuss what changes are needed to facilitate your success. Confirm an agreed upon timeline for dissertation defense.
- **Career development.** Consider discussing your career goals and the processes to achieve them. This may include internships, networking, increased conference

attendance, participation in leadership roles, etc. It is important to discuss what your plan is and communicate any support you may need from your PI.

- **Post-graduation.** Discuss expectations post-graduation including best ways to keep in touch after leaving the lab, whether or not it is expected that the PI will provide your contact information for prospective new lab members, and expectations on publishing and finishing up lab work after graduation (e.g. scope of work, health insurance, pay).

### **SOP for Defending Dissertation**

**Determination of Readiness for Graduation:** Careful planning of activities and accurate projection of when the doctoral student is likely to graduate cannot be emphasized enough. It is the responsibility of the Doctoral Committee to determine that the research work performed by the student merits the award of the PhD degree in both quantity and quality. It is strongly expected that publications in peer-reviewed journals will be generated from the research completed by the doctoral student. CiTEM expects students to complete 3 publishable units as core research chapters. This expectation, however, will not diminish the responsibility of the Doctoral Committee to evaluate the quality of the student's research and the timing for the PhD defense.

**Scheduling Timeline:** It is important to note that the deadline for the finalized dissertation to be submitted to The Graduate School occurs a few weeks prior to the end of each semester (e.g., end of November for Fall Semester, mid-April for Spring Semester, and end of July for Summer), with specific dates posted on the [Graduation Deadlines](#) webpage. The Spring is the only semester with a hooding ceremony; however, students who graduate in other terms may participate in the hooding ceremony the following Spring. Additionally, dissertation defenses should be scheduled sufficiently in advance to ensure room availability and committee member attendance. Therefore, CiTEM recommends that students follow the steps outlined below to ensure timely graduation.

1. **Final Committee Meeting (4-6 months prior):** The student meets with their committee to obtain permission to wrap up research and focus on writing the dissertation. In this meeting, a general time frame for the dissertation defense and any tasks the committee deems essential for the student to complete prior to proceeding with the defense should be discussed.
2. **Schedule Defense (3-4 months prior):** The student schedules the defense with their committee, including reserving a room after a date/time are selected. **ALL committee members must attend both the public seminar and the final oral exam** (which together comprise the dissertation defense). This date must be within a semester or summer session that the student is registered in TOXC 994. After a date/time are selected, the student should inform the Program Director and DGS of the planned defense date/time.
3. **Apply to Graduate (beginning of semester in which student defending):** Students should check the [Registrar's Calendars](#) for the deadline to apply to graduate for the semester in which they are planning to defend and apply to graduate following the instructions provided [here](#). There are no penalties if the student applies to graduate and does not complete all requirements on time.
4. **Finalize Dissertation and Circulate with Committee (at least 3 weeks prior):** The student completes a full draft of their dissertation to the satisfaction of their research advisor and

according to Graduate School and CiTEM guidelines. Editorial formatting does not need to be final until submission to the Graduate School. The student must distribute the full draft of the dissertation to the committee members **no later than 3 weeks prior** to the scheduled defense date. Committee members have 10 days to review the dissertation and contact the Committee Chair with any concerns, or lack thereof, regarding the overall document or general readiness of the candidate to proceed to the final defense. This should be done through an email message (cc'd to the DGS) and include a recommendation for proceeding with the dissertation defense or delaying to a future date.

5. *Decision to Proceed with or Delay Defense (10 days prior)*: If the committee approves the written dissertation, the public seminar is announced to the community at large for the planned date. The final oral examination is held immediately after the public seminar. Editorial or any other **minor changes** to the written dissertation may be recommended by the Doctoral Committee either before the public seminar or immediately after the final oral exam. If the committee does not approve the written dissertation, the defense is postponed, but the student uses the scheduled time/date to meet with the committee to benefit from their comments on how to improve the doctoral dissertation.
6. *Dissertation Defense*: The dissertation defense comprises a one-hour public seminar followed directly by a private oral examination with the committee. Following the oral examination, the student will leave the room, and the committee will determine whether the student has passed the exam. Complete Part III and IV of the [Doctoral Exam Report](#) form and the [Program Certification of Degree Requirements](#) form and submit it to the DGS and Business Services Coordinator .
7. *Revise Dissertation*: Edit dissertation as recommended by committee members.
8. Submit the Electronic Dissertation ([see more detail below](#)).
9. Graduate!

### **Dissertation Preparation Guidelines**

**Goal:** The paramount goal of the doctoral dissertation is to provide a document that carefully organizes, describes, interprets, and integrates the findings of the PhD research project.

**Format:** The UNC Graduate School has [specific requirements](#) concerning the preparation of a final dissertation document. Students should become familiar with and follow these requirements. These formatting guidelines include reformatting previously published manuscripts to adhere to The Graduate School formatting and obtaining permission for reproducing previously published work (which is typically copyrighted by the publishing journal). Editorial formatting does not need to be final until submission to The Graduate School.

**Structure of Content:** CiTEM dissertations should include core research chapters anchored on each side by Introduction and Discussion chapters. These sections are described in more detail below, along with CiTEM-specific recommendations for other dissertation sections. To propose a potential alternative format, please contact the DGS and Program Director. These guidelines do not preclude other specific requirements of The Graduate School.

*Preface:* The dissertation should include a Preface, where the contributions of co-authors/collaborators are recognized and citations for previously published work are presented. The reasons for this preface include (i) to orient the reader to the relationship between research publications and the overall goals of the dissertation research; and (ii) to comment on the specific contributions of the doctoral student to publications with several authors, which is especially important in studies in which a researcher other than the doctoral student is identified as having contributed equally to the study (co-first authorship).

*Introduction:* The purpose of this chapter is to provide the reader with an understanding of the nature of the research problem, the importance of the area being investigated, and the goals and rationale for the studies, that are to be described. Content for the Introduction may be previously published as a review paper; however, additions to, updates to, or restructuring of previously published review content may be needed to ensure that the Introduction is up to date, presented in a logical progression, and covers material for the full scope of the dissertation. This component of the dissertation should serve as an introduction to each research chapter including the overall hypothesis and aims of the conducted research. An overall graphical abstract is encouraged to introduce the dissertation.

*Core Research Chapters:* Core research chapters represent the primary research projects undertaken throughout the course of the student's tenure as a doctoral student. These chapters may be publications, articles in submission, manuscripts in final form for submission to a scientific journal, or unpublished methods development pertinent to the dissertation. Small projects may also be included in an Additional Experiments chapter. The order of the core chapters should maximize reading and understanding the overall dissertation and may or may not follow the chronological sequence in which the findings were collected. The structure of each core research chapter may reflect the sections prescribed by the journal in which the results were previously published or may follow the standard Introduction, Methods, Results, Discussion format. Note that abstracts for each core research chapter (such as those typically included in publications) are not included in the dissertation.

*Discussion:* This chapter should integrate all of the findings of the dissertation and provide the reader with an understanding of how the work contributed to the particular areas of research and to the field of toxicology. Importantly, **this should not be a summary or review of the results**. This can include how the work changed accepted concepts, the uncertainties caused by technical limitations, and reasonable speculation about the importance of the work to the broader field. Illustrations (models, flow charts, etc.) may be used when appropriate. While this section should facilitate the reader's comprehension, it also should provide a demonstration of the maturity and scientific acuity of the candidate. Specifically, it should include the author's perspectives on potential follow-up investigations and future directions of the research field. In no other type of publication will the author have the freedom and space to comment on the unique aspects of the completed study, as well as his/her views on the new research paths potentially opened by the novel findings described in the dissertation.

*Appendices:* This section may be used for supplemental tables and figures (e.g., Appendix 1: Supplemental Figures; Appendix 2: Supplemental Tables), or other pertinent supplemental information not included in the main body of the core research chapters.

**Note:** Use of generative artificial intelligence (AI) is only acceptable for revising and polishing the Dissertation Proposal Document (see [student guidelines on AI from UNC](#)). If generative AI is used, an attestation with the name of the tool used and information on

how you edited the output must be provided at the bottom of the document prior to listing references (e.g. “I attest that I made use of AI in the following ways: ...”). A copy of the conversation with the generative AI must be provided as an additional attachment to the committee.

### **Submitting the Electronic Dissertation**

The Graduate School will clear a doctoral student as a recipient of the PhD degree once the following steps are completed:

1. The student applies to graduate through ConnectCarolina (see above)
2. The [Doctoral Exam Report Form](#) with all parts completed, signed and/or initialed is received by the CiTEM and is forwarded to The Graduate School
3. The CiTEM submits the [Program Certification of Completion of Degree Requirements](#) form to the Graduate School
4. The final doctoral dissertation, edited to include all recommendations from the Doctoral Research Committee and formatted according to The Graduate School Guidelines, is [submitted electronically](#) to The Graduate School per [instructions](#)



## Conflict Resolution Procedures

CiTEM conflict resolution procedures are first guided by the UNC-CH School of Medicine Office of Graduate Education (OGE) policies. OGE policies for both BBSP first year students and for graduate students in their PhD programs can be found on the [OGE website](#).

Both the UNC-CH Office of Graduate Education (OGE) and the PhD granting program (CiTEM) are committed to ensuring safe and respectful working environment for all trainees. As such, there are plans in place if a conflict must be resolved between the thesis/dissertation advisor and the student. See the priority order of steps from beginning to escalation below.

1. Involve members of the student's dissertation committee. The Committee Chair or other contacted committee member(s) will attempt to mediate discussions and co-develop a resolution strategy with both the thesis advisor and the student. If students have not yet formed a committee, begin with step 2.
2. Contact the CiTEM DGS for mediation. The DGS will attempt to mediate discussions to resolve conflict and may recommend alternate strategies for mentor/mentee interactions, recommend additional trainings for the mentor/mentee to gain any needed skills to help with conflict management, and involve other CiTEM leadership, such as the Program Director, as needed. If the advisor is the DGS, the Program Director will be the point of contact for this step.
3. If CiTEM leadership intervention is unsuccessful, conflict can be further escalated to the faculty member's Department Chair or Center Director, then the School or College Dean. If the student's faculty advisor is the Department Chair or Center Director, the next step should be the Dean of the School or College.
4. Finally, conflict can be escalated to the UNC-CH Ombuds office, which offers confidential resources for students and faculty, offering advice, coaching on situation response, and conflict mediation.

If conflict is primarily between the student and members of the committee or a member of CiTEM leadership, the student's advisor will be the primary point of contact for recommendations on managing these conflicts.

Other contacts that may be helpful in providing advice on conflicts or relationships include other faculty with whom students have existing relationships, such as a First-Year Group mentor or faculty on committees on which they have served; the Business Services Coordinator who can provide advice and helpful resources; and Counseling and Psychological Services (CAPS) counselors, who are confidential resources and can talk through student issues.

The OGE is an additional resource for extremely difficult or sensitive situations; however, their role is limited to secondary perspectives after consultation with CiTEM. OGE is available to provide information on available options and practice difficult conversations. The OGE will not advise on decisions as this is under the purview of CiTEM. More information on OGE's role and individuals within their OGE and their responsibilities can be found on the [OGE website](#).

## Staying Integrated While Working in RTP

CiTEM students have the opportunity to complete their dissertation research off-campus at the NIEHS or the EPA in Research Triangle Park (RTP), located on a central campus about 14 miles from UNC-CH. Working directly with government organizations to complete dissertation research provides unique professional opportunities and insights to our students, that are not available in other programs, even on UNC-CH's campus. Below are some tips for success and staying integrated from CiTEM students who have worked at these off-campus laboratories.

### *Logistics:*

- If you are interested in a rotation at NIEHS or EPA, **plan ahead and reach out to Pls early (Late Summer/Early Fall)**. Extra time is required to obtain clearance and badge access to these facilities. Winter and Spring rotations are ideal, although you will want to start planning in the Fall.
- Because students who work off-campus at NIEHS or EPA are unlikely to get a UNC-CH parking pass and public transportation options from RTP to UNC-CH are limited, CiTEM will provide parking vouchers for use in the Dogwood Parking Deck while students attend classes. Reach out to the DGS prior to the start of each semester with the number of hours you would need to park on campus for courses per week, so that an appropriate number of passes can be ordered.

### *Professional Development:*

- Take advantage of trainee support at NIEHS or EPA. At NIEHS, there is the Office of Fellows' Career Development (OFCD), which provides training and career support to graduate students and post-docs. There are also trainee-led groups such as the National Trainees Assembly, and most of the branches have individual trainee cohorts as well. At the EPA, you may join the Networking and Leadership Training Organization (NLTO) to meet other trainees at the agency. Other good ways of getting involved include signing up for committees to help organize seminars or special events such as the NIEHS Biomedical Career Symposium.

### *Social:*

- Seek out community at NIEHS or EPA. There are numerous trainees from UNC-CH and other universities at NIEHS or EPA. It's helpful to create your own community in the institution where your lab is housed. Reach out to other trainees to schedule a time to have lunch together or go for a walk around the lake.
- Invite CiTEM members to events at NIEHS or EPA. Sometimes, local meetings are held at the NIEHS or EPA. Spread the word about these to the CiTEM community. If there are special seminars you think would be of interest to your peers in CiTEM, you may ask the organizers if you can invite them. It's not difficult to register them as visitors to the NIEHS or EPA campus. The Business Services Coordinator can help distribute information to the CiTEM listserv.
- Attend CiTEM social events! Events organized by the social committee and annual events such as the holiday party or the CiTEM retreat are extra opportunities to keep in touch with the CiTEM community.
- Attend activities at UNC-CH in-person when possible. Attending dissertation defenses, social events, and special seminars on campus are great ways to maximize your interactions with your CiTEM cohort.
- Coordinate attendance at scientific meetings with your cohort-mates at UNC-CH. Local conferences such as the North Carolina Society of Toxicology Annual Meeting are a great way to catch up with other CiTEM students.

## Administration and Logistics

### Graduate School Handbook

Information on the governance and regulation of doctoral study are contained in the [Graduate School Handbook](#). It is the student's responsibility to be familiar with its contents and comply with the stated rules, regulations, policies, procedures, and deadlines. In case of discrepancy between the CiTEM handbook and the Graduate School Handbook, the Graduate School Handbook will take precedence.

### Stipend

#### Appointment to the Toxicology Training Grant

We try to appoint every CiTEM trainee on the T32 Training Grant for at least a year, if eligible. The current stipend amount for FY 2024 is \$27,144 per year which amounts to \$2,262 per month. Your stipend will be disbursed twice a year by the university cashier – via check or [direct deposit](#). The first payment is processed as soon as you are appointed to the training grant via xTRAIN, and the second payment is processed six months after that.

Although the T32 Training Grant pays \$27,144 per year, the BBSP minimum stipend is \$37,000 per year. If appointed to the T32, the remainder of your stipend will come from your advisor's funds through payroll once a month.

The stipend is educational support and as such it is not pre-taxed as income by the University (however, it is not necessarily tax free). You will receive either a 1099-MISC tax form or W2 tax form depending on your funding information that you will use to prepare your own tax returns. It is your responsibility to take action to pay your taxes. Based on your financial situation you may or may not have a tax liability.

### xTRAIN

**Appointments:** Students supported through the NIEHS T32 Training Grant must be documented via xTRAIN. Once appointed, the student will need to enter their information into the eRA Commons/xTRAIN online portal. This is a multistep process:

1. CiTEM Business Services Coordinator will enter the student's information into eRA Commons/xTRAIN requesting an account for the student.
2. The student receives an email notification and accepts the new account, completing their profile with their degree, citizenship, and all other necessary information requested by xTRAIN. Failure to complete your profile will keep the process from advancing and will result in a delay in your payment until the necessary forms are submitted to and accepted by the NIH.
3. After this initial set-up, every necessary action is started by the CiTEM Business Services Coordinator and requires feedback and action from the student. Every action will result in an auto-email notification to every party involved. **We expect that every student who receives a request through xTRAIN will follow up on it promptly**, reviewing the information presented and approving/denying the forms as appropriate.
4. Once all forms are submitted and accepted, the Business Services Coordinator will issue a T32 stipend payment via GradStar.

We are aware that it can be a complicated process, but **compliance is essential** to guarantee continued stipend support. Please take the time to become [familiar with xTRAIN](#).

**Terminations:** Terminations happen once a student has received their funding on the T32 training grant and is rotating off the grant onto another funding source that their advisor had provided. This is not a consequence; rather, its purpose is to maximize the number of trainees appointed to the program. Terminations typically occur after one year of funding on the T32; however, students can be appointed for up to two years, so some terminations may occur after two years of funding. This is also a multistep process:

1. CiTEM Graduate Business Services Coordinator will initiate the termination form, routing it to the student. An email notification will be sent.
2. The student receives an email notification and reviews the information on the termination form, thoroughly filling out the “training received” part of the form with all the training they received while on the T32 Grant and how that has benefited them in the program. Again, please be thorough as these responses can affect the future availability of funds for the grant.
3. After reviewing all information and filling out every part of the termination form, the trainee will route the form back to the PI/CiTEM. Comments are optional unless needed.
4. Once all forms are submitted to and accepted by the NIH, the student’s appointment termination is complete and their obligations on the T32 are fulfilled. They will receive no further stipend payments via GradStar.

### **Appointment as Graduate Student Research Assistant Through an Extramural Grant**

Your stipend (\$37,000 in 2024) will be paid from a research grant identified by your advisor through monthly payroll.

According to information you provide on a W-4 form filed with the department that manages your advisor’s research grant, taxes are deducted monthly from your stipend. You will receive a W-2 form after the end of the calendar year.

For more detailed information on stipends and taxes can be found on the [Graduate School website](#).

### **Tuition & Fees**

Tuition is paid through GradStar by the same funding source that covers your stipend. Fees are also paid directly by the Toxicology T32 Training Grant and/or your advisor’s funds (depending on source). In case of an exception, fee payments will be discussed between the Business Services Coordinator and the student. For your tuition and fees to be paid on time, you should register for classes as soon as possible each semester. Please remember, if you have outstanding invoices on your student account (check [Connect Carolina](#)), you will not be able to register until past bills - for which you are responsible - are paid.

As tuition costs vary substantially based on whether students are NC residents or non-residents (i.e. more than twice as much for non-residents (\$14,000) than residents (\$5000), [see current rates here](#)), it is critical to apply for and obtain NC residency as soon as possible. CiTEM has limited funds to aid in tuition remission from the University, which helps programs to pay the difference in resident vs. non-resident tuition. However, these limited funds are typically reserved for individuals who are never eligible for in state tuition (i.e. foreign nationals) and occasionally for 2<sup>nd</sup> year students working to obtain residency. Any difference between resident vs. non-resident tuition may be the responsibility of the research mentor to cover if CiTEM funds are not

available. Students will be given information about this process in their 1<sup>st</sup> year BBSP courses and can also find more information on the Graduate School [website](#).

## Health Insurance

As a graduate student with CiTEM you will be enrolled in the Graduate Student Health Insurance Program, also known as GSHIP. Enrollment will take place on August 1st or on the 15th day of the month following your appointment. This health coverage will be paid via GradStar by CiTEM. GSHIP is paid by the same source that is covering your stipend but is not deducted from your stipend. If you do not want to be enrolled in GSHIP for any reason whatsoever (i.e. you remain on a family insurance plan), please reach out to the Business Services Coordinator to ensure you are not enrolled.

As a student, when enrolled in GSHIP you are automatically waived out of Student Blue, the mandatory university wide health coverage. However, it's always good to double check and ensure you've waived Student Blue. Guidelines can be found on the [Campus Health website](#).

## Mental Health Supplemental Funding

*About the Program:* Life can be stressful while pursuing a graduate degree. The CiTEM knows this and wants to support you during your time here. As a PhD student, you are eligible for CiTEM specific counseling support.

Available services include an initial assessment of needs, individualized treatment planning for brief therapy, referral coordination to community-based providers for specialized or ongoing care, connection to group therapy services, and support for medication management. Financial support for out-of-pocket mental health expenses is available if needed. For crisis or 24/7 support, call UNC CAPS at 919-966-3658 or call/text 988 for the Suicide and Crisis Lifeline.

*How the Program Works:* The goal of this program is to provide additional funding to PhD trainees in CiTEM who are seeking mental healthcare services in the community and need financial assistance to meet the costs of these services. This program provides up to \$500 per semester for our trainees to put towards their mental healthcare costs. Your referral to this program is managed through CAPS who refer you to our Business Services Coordinator and Business Services Coordinator when you are approved and have signed the necessary forms. The Business Services Coordinator will then ensure that these accepted students are supported as necessary with the limited funding we have available to CiTEM. This program is available both to individuals who have already sought out CAPS to initiate care and individuals who are newly seeking care.

*How to Apply and Receive Funding:* Email or call Zoe Silverman ([zoesilv@email.unc.edu](mailto:zoesilv@email.unc.edu) – (919) 966-3658) to set up a time to speak or meet in order for Zoe to evaluate your needs and discuss your options. Please be prepared to fill out the three forms below after meeting with Zoe. Zoe will refer you to the Business Services Coordinator who will assist you with the disbursement of your emergency award.

### *Step by Step process:*

1. Student will contact CAPS (Zoe Silverman)
2. CAPS will determine the need for community mental healthcare
3. CAPS will communicate the need to CiTEM
4. Student will complete [all three application forms](#)
5. CiTEM will process up to \$500 award (per semester) after receipts have been submitted

## Additional Compensation

CiTEM Leadership recognizes that graduate students may be interested in work outside of their graduate studies to gain relevant experience for future careers (e.g. teaching assistantships, tutoring, coaching). However, as obtaining a PhD is a full-time pursuit, completion of coursework and research requirements should be the priority. As such, any pursuit of outside work, whether paid or unpaid, should be discussed with your advisor prior to initiation to ensure that all requirements for graduate education are being met and that the graduate student will remain on track for a timely graduation with the addition of any extra work. Additionally, the NIH provides the below guidance on additional work and compensation for those that are appointed on a T32 or have obtained a Fellowship.

NIH policy on additional compensation for Fellowship and Training Grants indicates that "...trainees may seek part-time employment coincidental to their training program to further offset their expenses. Fellows and trainees may spend on average, an additional 25% of their time (e.g., 10 hours per week) in part time research, teaching, or clinical employment, so long as those activities do not interfere with, or lengthen, the duration of their NRSA training." See more details at the [NIH website](#).

## Student Travel Information

Whether it be for the yearly Society of Toxicology Conference or a trip to present your research abroad, CiTEM has you covered for all your travel related questions. If you find yourself with a burning question not addressed below, please reach out to the Business Services Coordinator and they will do their best to answer your question(s).

## Student Travel Process

1. **Travel Preparation:** The first step is to talk to your advisor about the trip to see if there are funds available for you to travel. Every student is encouraged to participate in national scientific meetings and CiTEM strives to help with the travel costs. However, we expect that you are conscientious of program budget limitations. In case you plan to attend a conference or a seminar, it's necessary to discuss potential sources of support with your mentor first. If help from CiTEM is anticipated, be sure to contact the Business Services Coordinator and Director as early in the planning process as possible to determine availability of funds (restrictions on the size of the travel award per student may apply).

Certain federal grants have travel funds set aside for the grantee to use as needed, for example, students appointed to the T32 have access to some travel funds (contact the Business Services Coordinator for more information). Please do your due diligence and review your federal funding sources to see what support you might have. Additionally, each student is encouraged to explore any conference or UNC-CH based [awards](#) that may provide additional funds for travel. It is assumed that funds from any received awards related to conference attendance or travel (e.g. travel awards, abstract awards, conference-based achievement awards, etc.) will be applied before any CiTEM or federal-based funds will be applied.

Once the source of funding has been ascertained, please make sure to fill out the [CiTEM Travel Authorization](#) form. This form is necessary for any student traveling on behalf of or relating to their research in the CiTEM. Once you, your advisor (or Program Director if students are mentored by an investigator at EPA/NIEHS), and the Program Director have signed this form, please send it to the CiTEM Business Services Coordinator for filing and final approval.

2. **Travel:** Next, travel on behalf of CiTEM to your conference/event, presenting your research as planned, and keeping copies of all receipts.
3. **Travel Reimbursement:** Upon your return, submit your receipts along with a copy of your Travel Authorization form to the CiTEM Business Services Coordinator to create and prepare a web travel reimbursement form on your behalf. Receipts and Travel Authorization form must be submitted within 30 days of completion of travel for reimbursement. Once completed, the Business Services Coordinator will send you a Traveler's Acknowledgement form which you are required to sign, agreeing that you did indeed travel and can confirm the amount being requested for reimbursement is accurate. Once signed and returned, the Business Services Coordinator will submit the web travel form to the Travel Office for approval. The approval process can take anywhere from 1 to 4 weeks. The Travel Office works as quickly as they can, and certain times of the year are busier than others. CiTEM will make every effort to process the travel reimbursement as fast as possible. See travel services and reimbursement information at the [finance website](#).

Once approved by the Travel Office, the reimbursement is sent to the University Cashier's office to be vouchered to the student via direct deposit within 3-5 business days. Please note that if you have any outstanding balances on your account, this reimbursement will be applied to the outstanding balances first. This is a university policy that CiTEM, the Travel Office, and the University Cashier's Office have no control over. It is the responsibility of the student to ensure they are in good financial standing with the university in order to receive their reimbursement.

#### 4. **Additional Information**

**Modes of Transportation:** It is the University's preference that you fly when you travel. If you would like to drive, it is the University's preference that you rent a car. If you decide to drive your own vehicle, the University requires that you provide a financial justification for doing so. Please be mindful about these choices as they can affect the timeline for reimbursement and could ultimately keep you from being reimbursed if the Travel Office does not agree with your financial justification.

Please see [this memo](#) on personal travel intermixed with University travel, as it is also something that could keep you from being reimbursed.

**On Prebooking Flights:** You can contact the Graduate Business Services Coordinator or Business Services Coordinator, who can make a flight reservation through Central Airfare Billing System (CABS) which is paid directly through the University from sources pre-approved for the student. Every other associated cost (hotel, fees, abstract, transportation, etc.) must be documented with an original receipt and will become part of a travel reimbursement file. Cost for food will be reimbursed on a per diem basis (fixed amount for breakfast, lunch and dinner based on the time away from the training site). Please note that when making a flight reservation through CABS, we only have control over the days and time of day for departure and arrival. More information about University Procedure on air travel can be found on the [policies website](#).

**Per Diem Reimbursement (Food):** The University does not reimburse travelers for individual meals, so these receipts are not needed. The University uses the federal system (GSA) for meal reimbursement for trips. This means that, depending on your destination, you will be allotted a certain amount for breakfast, lunch, dinner, and incidentals. These amounts are

updated regularly and are available at [US General Services Administration Website](#). This also means that on your first and last day of travel, you are allotted only 75% of the stated per diem.

**Third Party Lodging:** The decision to use third-party lodging (e.g. AirBnB, VRBO) is similar to deciding to use a taxi or rideshare. It is a personal decision; however, the traveler should be fully aware that they are personally responsible if there are issues. Since the agreement is between the traveler and the unit owner, UNC Travel Services cannot intercede to assist if there is a problem with the residence or the reservation.

Travelers must complete the [1501.6 – Procedure on Lodging Accommodations](#) to receive preauthorization to book a third-party lodging. Do not put a deposit down until you have received pre-authorization from your school/unit. Once approved, you are responsible to book the accommodation on your own. The cost should be similar to or less than the average hotel in the same location. Prices for two hotel options must be included as supporting documentation. A signed lease agreement must be shared with the approving party to receive reimbursement. Please refer to [1501.6 – Procedure on Lodging Accommodations](#) for further guidance on Third-Party Lodging.

**International Travel:** International travel includes a few extra hoops to jump through. First, you'll need to fill out the [CiTEM Travel Authorization Form](#). Once completed and approved, follow the directions below from both the School of Medicine and the Graduate School.

#### School of Medicine

1. Download and complete the [international travel approval form](#).
2. Obtain designated approver signature on the international travel approval form. (Designated approvers include Deans, Division Chiefs, Department Chairs, and Center and Area Directors.)
3. Upload the approved international travel approval form into CONCUR.

If you are traveling to a **Level 1 or Level 2 country** and your designated approver has approved, YOUR TRAVEL IS APPROVED. Upload your form into Concur and proceed with your travel planning.

If you are traveling to a **Level 3 or Level 4 country** and your designated approver has approved, your request will be reviewed in Concur by the Office of the Vice Provost for Global Affairs. Once you see an approval in Concur, your travel is approved.

*If your request requires additional levels of review, you will receive an email from Jill Wilhelm and Kim Priebe. For questions, please email Jill Wilhelm at [jill.wilhelm@unc.edu](mailto:jill.wilhelm@unc.edu).*

#### Graduate School

1. Submit requests through [Rapid Admin Service Request \(RASR\)](#).

On the Graduate School tab, select “Graduate Student Request for Travel Restriction Exception.”



For RASR access issues, contact Julie Montaigne at [julie\\_montaigne@unc.edu](mailto:julie_montaigne@unc.edu). Applicants can follow the approval process in the RASR system under “My RASR Form Submissions.”

2. Have your advisor complete the [Advisor Approval Form](#).

Exceptions for University-affiliated international travel must be approved by the traveler’s 1) Department Chair or DGS; and 2) appropriate senior administrator (School Dean or Associate Dean). **By approving the request, the Dean or Dean’s Designee has determined that the articulated benefits to the University outweigh the risks associated with the travel.** Deans or designees should review the [updated international travel guidance](#) from May 11, 2023.

If you are an approver for this process, please visit [The Graduate School website](#) for more information.

*UNC Global will need up to 14 days to review Level 3 and Level 4 requests. If you are experiencing a longer delay, please email Kim Priebe at [kim.priebe@unc.edu](mailto:kim.priebe@unc.edu).*

## Travel/Conference Awards

As conferences are a great way for students to showcase their research, practice presenting their work in a variety of formats, network, and explore career options, students in CiTEM are encouraged to attend meetings, whether local or national, at least yearly. Travel to conferences, especially in other states, can be costly. Travel funds from federal grants and CiTEM are limited, so students are highly encouraged to explore travel or conference awards as a means to help support their travel. Travel or conference awards are an additional honor that can be highlighted on your Biosketch or CV to showcase the eminence of research pursuits. There are a few award mechanisms available to support travel at UNC-CH, which are described below. Other mechanisms are available through conferences and societies, such as the Society of Toxicology and are available on their websites.

It should be noted that it is expected that students will communicate the receipt of any conference or travel awards to the Business Services Coordinator, so it can be highlighted as an achievement on the website. Further, as federal and CiTEM travel funds are limited, any funds received by the student for travel or related to conference attendance through an award will be applied to offset travel costs prior to reimbursement from other sources.

### Golberg Memorial Travel Award

The Leon Golberg Memorial Travel Award is an annual award open to CiTEM students as well as students in other science-related programs at UNC-CH presenting accepted abstracts at the Society of Toxicology meeting. More information about Leon Golberg and his contributions to Toxicology can be found in his [Toxicological Sciences feature](#). The award is paid from interest on an endowment the Golberg family has graciously set aside for the students in CiTEM and UNC. Because of this, the funds available to the program each year are fluid.

To apply for the award, please email your abstract and any travel awards you have already won in the current year to the current Business Services Coordinator. The program takes each application seriously and we do our best to notify winners within three weeks of the submission deadline. Because this award is a Spring Semester award, the program traditionally accepts abstract submissions from the 1<sup>st</sup> of February, with the due date being the 15<sup>th</sup> of February.

If you win a Leon Golberg Memorial Travel Award, you will be notified by email including the details of your award and where to pick up your Golberg ribbon, to be displayed with your abstract presentation at the Society of Toxicology should you choose to attend. The award will be entered into GradStar by the Business Services Coordinator and follows the same process as any other award or payment processed through GradStar. Please allow 3-5 days for the University Cashier to process the payment and be sure to check your student account for any outstanding balances that would keep you from receiving the payment.

### **David Holbrook Travel Award**

The David Holbrook Travel Award for Graduate Students is open to students in UNC-CH PhD programs. Students applying for the award must have a demonstrated interest in Environmental Health and have a submitted/accepted abstract at a scientific meeting. As the award is paid from interest on a fund established in honor of Dr. David Holbrook, funds available to the program each year are fluid. Applications will be evaluated for the strength of the student's academic record and the relevance of abstracts to the student's academic and/or professional career objectives in Environmental Health. Additional details on award requirements and submission procedures can be found on the [David Holbrook Travel Award website](#).

### **Graduate Student Transportation Grant**

The Graduate Student Transportation Grant is a fund offered by the Graduate School to support student travel to present research at conferences or society meetings. This grant can only be received one time per graduate student and must be submitted within 30 days of travel dates. Receipts must be submitted to the Graduate School for reimbursement with travel costs listed. Accepted costs are only transportation related (i.e. flights, train ticket, etc.). More details can be found on the [Graduate Student Transportation Grant website](#).

### **Additional Information**

Student Account Services – Frequently asked questions

<http://cashier.unc.edu/student-account-policies/faqs/>

<http://www.med.unc.edu/toxicology/>

Names, addresses, research information & more

<http://gradschool.unc.edu/>

If in doubt, do not hesitate to contact the Business Services Coordinator.