NC STATE UNIVERSITY

Toxicology Graduate Program

Graduate Student Handbook

2025-2026

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Toxicology Graduate Student Handbook

This handbook was compiled to serve as a program guide/reference for new and existing Toxicology Program graduate students. The handbook explains what a new graduate student needs to do upon arrival on campus and how to get started in his/her/their graduate program and serves as a reference for existing students as they progress through the program. The handbook outlines the steps necessary for the successful completion of his/her/their degree program and provides information regarding university and departmental procedures and regulations. The handbook is not meant to replace the Graduate School website, but rather to provide an overview of important program and university policies and procedures.

The Graduate School has also provided an excellent webpage for new graduate student survival at NC State and Raleigh.

Additional information about the Toxicology Program can be found on our website.

History of the NC State Toxicology Program

Drs. F.E. Guthrie and E. Hodgson founded the Toxicology Program at NC State within the Department of Entomology in 1964. Since the initiation of the Toxicology-training program in the Department of Entomology, a number of milestones have been achieved. These include: i) the formation of a university-wide interdepartmental Toxicology Program (1964), ii) the granting of the PhD degree in Toxicology (1979), iii) the creation of the Department of Toxicology (1989); iv) the development and approval of graduate study concentrations in Molecular and Cellular Toxicology, Environmental Toxicology and General Toxicology (2000); v) change of the department's name to the Department of Environmental and Molecular Toxicology to better reflect its research focus (2000); vi) occupancy of a new 59,000 square foot $14 million state-of-the-art research Toxicology Building (2001) and vii) the establishment of the College of Sciences (COS) and affiliation of the Toxicology Program with the newly assembled Department of Biological Sciences within COS (2013). Over the decades, the Program/Department has been highly successful in training MS and PhD students and postdoctorates as illustrated by the number of graduates who continue to contribute to the field of toxicology in academia, industry, and government.

Currently, (2024-2025) twenty-eight graduate students are enrolled in the program. Of these, twenty-six are PhD students and the remaining graduate students are working towards their Master's degree. Students are from undergraduate institutions across the U.S. as well as from several countries around the world. The majority of PhD students within the program have undergraduate degrees in biology, chemistry, biochemistry, or toxicology.

We extend a warm welcome to the new students entering our department and we look forward to a productive scientific relationship. We encourage you to get involved with the Toxicology Graduate Student Association (TGSA) and to participate in program events including seminars, workshops, and social activities.

Toxicology Administrative Personnel

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*** denotes faculty member is also a preceptor on our NIEHS T32 Training Grant**

Graduate Student Support Plan (GSSP)

The Graduate Student Support Plan is a highly competitive support package used to attract top students to NC State. Under the Plan, students supported on a teaching or research assistantship or a fellowship of at least $**15,000**/yr (Master's) or $**20,000**/yr (PhD) and who meet the minimum registration requirement, receive (at no cost to the student) health insurance and tuition.

Tuition/Fees
If your tuition is not covered by a GSSP eligible assistantship, you may be responsible for your tuition and fees. Please visit the respective websites for more detailed information about due dates and payment methods. Tuition and fees are due before the beginning of each semester; the date is always posted on this website. For most PhD students, your tuition will be paid by your funding source. While we ask faculty advisors of PhD students to cover student fees, it is not guaranteed that this will always be the case. For MR and MS students, you are responsible for your tuition and fees.

Tuition Remission
If you are an out-of-state or international student on a research assistantship, teaching assistantship, or fellowship, you may be eligible for tuition support through the GSSP. Tuition remission is the difference between in-state and out-of-state tuition per semester. The student is allowed to pay in-state tuition, and the program/university pays the difference out of special funds. If you are a US Citizen or permanent resident and are awarded tuition remission, it will only be awarded for **ONE** year. ***Attaining North Carolina residency is essential since you will not be eligible to receive tuition remission after the first year.*** International students cannot attain residency, and continue to be eligible for tuition remission after the first year. Please follow the guidance from the GSSP and the NC Residency sites.

Health Insurance
If you are a full-time student and supported by a GSSP eligible assistantship, fellowship, or traineeship and receiving an appointment of at least $**15,000** annualized as a master's student or $**20,000** annualized as a doctoral student, your health insurance will be paid by GSSP and you will be automatically enrolled in the Graduate Student Health Insurance plan. The annual coverage period is August 1 to July 31 of the following year. Child and spouse insurance coverage can be purchased by the student.

Plan benefits can be found on the Student Blue. For questions regarding plan benefits or claims, please contact Student Blue directly at 1-800-579-8022.

Prior to & Upon Your Arrival to NC State and Raleigh

New Student Orientation
Please be aware there are three orientations for new graduate students held shortly before the start of the Fall semester: 1) a Toxicology Program orientation (August 19, 2025) 2) a university-wide orientation held by The Graduate School (August 15, 2025) and 3) an orientation for international students sponsored by the Office of International Services (OIS), only required for international students (August 13, 2025).

Establishment of North Carolina Residency for US Citizens
For tuition purposes, all US citizens and permanent residents are expected to begin completing residentiary acts as soon as they arrive in North Carolina. Please start your Basic Requirements of Legal Residency as soon as you move to North Carolina, as outlined on the Graduate School website. Once you have lived in North Carolina for a **minimum** of 365 days, you can apply through the Residency Determination Service (RDS) for NC residency aka in-state residency for tuition purposes. **If you apply before 365 days, you will be rejected.** Once you have received a validated residency decision from RDS, enter the Residency Determination Number (RCN) into MyPack Portal. Failure to establish North Carolina residency the first year will lead to costly out-of-state tuition charges in the second year and the student will be required to pay these out-of-state tuition charges.

Required Forms
By the time you arrive, you should have already received an email with information regarding your Graduate Assistantship from the GSC. You will receive notifications through MyPack Portal regarding the forms for employment you need to complete (NC-4, W-4). The I-9 form must be completed with the Onboarding Center. You will need to bring your IDs with you when you visit the Onboarding Center. International students need to bring all their immigration papers with them. International students must also notify the Office of International Services (OIS) upon arrival.

I-9 Info:

Once you have completed Section 1, Section 2 must be completed **within three business days** after your first day of work. An authorized representative of NC State University must complete Section 2 with you in-person, at the I-9 Center, in order for you to complete Section 2 in the required timeframe.

The I-9 Center (called the Hub) is located at 2711 Sullivan Drive, Administrative Services II building, in Room 101. Hours of operation are Monday-Friday, 8:30 am-4:30 pm; walk-ins are welcome and no appointment is needed.

If you wish **to schedule an appointment,** please email i9questions@ncsu.edu. Review the government's list of I-9 Acceptable Documents. Bring original documents (no photocopies). Either bring one

selection from List A, **OR** a combination of one from List B **and** one from List C.

https://ie.hr.ncsu.edu/i9-e-verify/ I-9 & E-Verify website

https://ie.hr.ncsu.edu/i9-frequently-asked-questions/ I-9 FAQs

Patent Agreement
You must agree to the University Patent Agreement via Student Self-Service in MyPack Portal.

Getting Paid
The procedure for getting paid depends on the source of your support. Graduate students are either paid bi-weekly or monthly via mandatory direct deposit. Direct deposit needs to be set up via MyPack Portal > Employee Self Service > Payroll and Compensation. You will need your bank's routing number and account number. Additionally, you may also view your paycheck through MyPack Portal. You may not have your first paycheck deposited until after your first full month at NC State, so please plan accordingly.

Taxes
Although taxes may not be deducted from your fellowship/traineeship check each pay period, all or part of your award **may be taxable**. Generally speaking, taxes will be deducted from your research or teaching assistantship. However, if you are being supported by the NIEHS Training Grant, taxes will not be deducted. It is your responsibility to make arrangements to pay your taxes. Those students on the Training Grant will not receive a W-2 form. You will not receive a W-2 form for your Fellowship stipend; however, the IRS is apprised of your award. Since Graduate School personnel and other University personnel are not tax experts, please contact the IRS for tax questions. Additionally, you may use this website for more information.

Wolfpack One Card
Permanent photo identification cards are required for all personnel on campus. The Wolfpack One Card is the official ID card for NC State. This ID card allows students access to the library, intercollegiate athletic events, university recreation center, use of Student Health Services, use of NC State Bookstores, and other University facilities, services and programs supported by required fees. It also is used to grant access to the research wing of the Toxicology Building and the entire Toxicology Building after normal business hours. The Wolfpack One Card office is located in Talley Student Union. You can begin the process of obtaining your ID before you arrive on campus, if you wish.

After receiving your Wolfpack One Card, email the GSC and let them know you have received your card so that key card access to the Toxicology Building can be granted.

NCSU Computer (Unity) Account and Email
Each person affiliated with NC State is assigned a Unity account, along with a Unity ID and password. Your Unity ID and password are used to access your campus email,

access the MyPack Portal system, Google Workspace, Wireless Network Access, Software Licensing, and more. Your Unity ID is issued in your admissions letter. You can change your default password once you log into your account for the first time. If you need help accessing your account, contact the Information Technology help desk (515-HELP or 515-4357) or log a service call with the NC State Help Desk.

Registration for Classes
The DGP will advise you on appropriate course registration for your first and second semesters or until you choose your Major Advisor. This is also based on the plan of study laid out by the training grant and can be found in the core course requirements. You will receive an email the summer before you begin advising you to register for your Fall semester courses before arriving in Raleigh. Your Major Advisor, Advisory Committee, and research project will determine subsequent coursework. You can browse course offerings for a given semester at NCSU Class Search and details about all NCSU courses can be found at the Course Catalog.

Guidance on Summer Session Registration
Graduate students are not required to register for courses during the summer. However, there are some exceptions.

If you plan to take your final oral examination or submit your thesis/dissertation to the Graduate School during the Summer, you **must** be registered for at least one of the two summer sessions, We suggest that you register for TOX 696 (Masters) or TOX 896 (PhD), 1 credit for the 10 week summer session.

Students not enrolled in the Summer maintain their access to the library, but other facilities that are funded by student fees, such as the gym and Student Health Services, cannot be accessed without paying for a summer membership.

If you are not registered for Summer Session 1 (10 weeks), you **do not** lose your insurance during the summer. However, you will be responsible for a fee to use the gym and Campus Health. Therefore, during the summer sessions, if an unregistered student covered by health insurance chooses not to pay the Health Center fee, they may visit a private doctor and use their insurance coverage.

Students who are employed as Graduate Research Assistants, but who are not enrolled in the University during a period of at least five weeks, are subject to Social Security tax withholding. Specifically, given Federal tax law as it relates to employment outside of student status, Social Security taxes will be withheld in June for RAs who are not registered in Summer Session I and in July for RAs who are not registered in Summer Session II. The source of funds that pays the stipend must pay the same amount of Social Security tax as is withheld from the student's paycheck during these months. One credit of TOX 696 or TOX 896 qualifies as half-time. By enrolling in this summer class, you remain exempt from FICA withholding, and the in-state tuition and fees you pay is less than FICA, so you save money. You also are

able to use the gym and health center. Otherwise, Campus Health and gym charges for each summer session will apply.

Two special registration categories are available for Graduate Research Assistants who would not otherwise take courses in the summer: XXX 696 (Summer Thesis Research) and XXX 896 (Summer Dissertation Research), where XXX represents the course prefix of a specific department/program. Each of these courses is for 1 hour of credit, which is considered full-time enrollment for tax purposes, for the Summer and which run for 10 weeks, beginning the first day of Summer Session I and extending into Session II. Social Security taxes will not be withheld from the June or July paychecks of RAs who register for either 696 or 896. 696/896 will not count as a part of your required course work in the Degree Audit.

Please note that students who are not registered at least half time during the Summer are ineligible for Financial Aid during that period.

Parking
University parking areas are zoned, meter controlled, reserved or restricted. All vehicles parked in zone areas on campus must have an appropriate virtual permit and must be parked in a space marked for parking. Students wanting a virtual parking permit can apply (July 24, 2025 at 10AM) and pay online. For more information, visit NCSU Transportation.

Student parking permits are allocated based on availability of the parking zone requested as well as priority date and time of request. **You can apply for permits the summer before you start at the University**. Parking at the Toxicology Building requires a “CC” permit. The “CC” permit is $230 per semester. The “F” permit is $200 per semester and allows you to park near the building but not in the Toxicology parking lot. Please check the map carefully to determine which permit will best suit your needs.

In addition we have a department parking pass that can be utilized for short main campus visits. **It cannot be used regularly to attend classes on main campus**. Please check it out from the GSC in 1104.

Wolfline
The Wolfline is NC State’s own bus service. Wolfline buses run every day that classes are in session, serving all three campuses, three park & ride lots, and official NC State housing. Wolfline buses are open to the public. No university ID, pass, or fare is required to ride. Wolfline Buses are red and white with Wolfline logo lettering. Wolfline buses travel along designated routes, stopping only at designated, marked Wolfline stops.

Mail
Each lab in the Toxicology Building has a mailbox for US Mail and Campus Mail in the program’s main office (1104). Any incoming mail will be placed in the appropriate lab mailbox. If you are in a lab in a different building on campus, this procedure may be different. Incoming mail should be addressed to you as follows:

US Mail
Your name
Toxicology Program
North Carolina State University
Campus Box 7633
Raleigh, NC 27695-7633

For University (inter-campus) mail, in the Toxicology building:
Name
Toxicology Program
Campus Box 7633

FEDEX, UPS, Airborne, and other courier delivery to a building on Centennial Campus using zip code 27606: FedEx shipments can be arranged through Marketplace.
Your Name/Lab Name
Toxicology Program
North Carolina State University
850 Main Campus Drive
Suite 1104
Campus Box 7633
Raleigh, NC **27606**

For assistance, please contact Mail Services at (919) 515-9859
https://facilities.ofa.ncsu.edu/about-us/all-facilities-departments/fs/mail-services/

Additional Resources for Professional Development

The Graduate School's Professional Development programs enhance graduate student and postdoctoral success by providing academic and career support, mentoring, and co-curricular experiences. The Graduate School's signature Professional Development programs help you develop a foundation for long-term scholarly and professional success. They offer innovative programs for careers in industry and academia as well as writing, teaching, and research support to enrich your personal and professional satisfaction during your time at NC State and beyond. For more information visit https://grad.ncsu.edu/professional-development/.

You are highly encouraged to take advantage of these programs to supplement your graduate school training.

Student Resources

Counseling Center

As part of DASA's (Division of Academic & Student Affairs) effort to promote the success of the whole student, the University Counseling Center believes that a healthy emotional life is the foundation for personal, academic, and professional success. Honoring individual differences, core human values, and the complexities of collegiate life, their counselors use compassionate, professional interactions to support emotional balance while encouraging students to reach their potential.

Their mission is realized through the delivery of comprehensive services, such as:

- Brief individual, group, and couples counseling
- Psychiatric evaluation and treatment
- 24-hour crisis response
- Campus and community referrals
- Faculty, staff, and student consultation
- Mental health educational programming

For more information, please visit their website at https://counseling.dasa.ncsu.edu/.

In addition to the services provided through DASA and the University Counseling Center, the College of Sciences and College of Agriculture and Life Sciences have an embedded counselor, Nicole Johnson. Nicole has drop-in hours on Tuesdays and Thursdays and is available for one-on-one appointments, for individual counseling.

Please take advantage of the many resources available on campus and take care of your mental health.

Additional resources can be found through DASA's Step-by-Step Help Topics website at https://dasa.ncsu.edu/step-by-step-help-topics/

Ombuds

The Ombuds office is available for faculty, students and staff to discuss concerns related to any aspect of an individual's NC State experience. An independent, neutral,

confidential, and informal office at NC State, Ombuds Services are available as a personal guide for conflict management, prevention and resolution while advocating for fair processes and empowering individuals to successfully navigate NC State. Plans to resolve conflicts can be developed confidentially with the help of the Ombuds office. Contact Student Ombuds here.

Title IX
If a conflict involves discrimination, harassment, or abuse based on identity (sex, gender, race, color, height, disability, religion, sexual orientation, country of origin, age), please contact the Office of Equal Opportunity at NC State.

Disability-Related Accomodations
Graduate students seeking disability related accomodations have resources on campus. For student/coursework-related accommodations, please utilize the Disability Resource Office. The DRO office will help a student request accommodations. Please initiate contact with DRO as soon as you know or learn that you will need accommodations.

If a graduate student needs RA/TA (work) related accommodations, please utitilize the Office of Equal Opportunity.

It is possible that a graduate student will need to make utilize the services of both offices due to their coursework and the nature of their graduate appointment. Please utilize the services provided by these offices.

Feed the Pack
Feed the Pack is a student-run food pantry on NC State's campus. Feed the Pack is student-led and open to all members of the campus community (students, staff, and faculty). Resources and help with finances and housing can also be found through Feed the Pack. If you need help, please contact Feed the Pack Food Pantry (as well as your program's leadership: GSC, DGP, Head).

Graduate Student Association
The Graduate Student Association (GSA) is a campus-wide organization of graduate students that deals with matters pertaining to graduate student life. The GSA also administers travel funds that will reimburse students who have presented their work at a meeting for a portion of their travel expenses (depending on the availability of funds). Programs that have GSA Chapters also get a nominal rebate of funds each semester to use as the Chapter sees fit.

Toxicology Graduate Student Association (TGSA)
The goals of the TGSA are threefold: creating opportunities for program members to interact in a social atmosphere; communicating important program and university issues and policies to students; fostering intellectual exchange between students and the scientific community. The TGSA typically hosts a lunch at the start of the Fall semester, a Friendsgiving potluck, and helps host the Toxicology Program Annual Symposium in the Spring. There are other social events and meetings throughout the year. The TGSA also annually hosts an alumni speaker to learn about career opportunities and hosts various activities associated with the program's annual student recruitment event. We hope you will take full advantage of the many social and academic opportunities presented throughout the coming year!

2025-2026 TGSA OFFICERS

President: Gillian Szabo

Vice President: Britney Paul

Treasurer: John Witherspoon

Secretary: Roland Gonzalez

Seminar Co-Chair: Izzy Courtney

Seminar Co-Chair: Violet Resh

First Year Representative: Shaunacee Howell

Degrees Offered:
Non-Thesis Degree Option - Master of Toxicology Degree (MTOX)

Requirements for a MTOX Degree
The MTOX degree is a non-thesis master's degree designed for students who desire advanced study in Toxicology, but do not wish to pursue research training. These students are not required to take a comprehensive oral exam. Master of Toxicology students may be part-time or full-time, thus this degree option is often sought by

professionals seeking graduate training in Toxicology while maintaining a full-time career. A minimum of 30 credit hours is required, with at least 20 credit hours of graduate-level courses and a core Toxicology curriculum. The program may not include research credits and no more than 2 credit hours of departmental seminar unless the total program exceeds 30 hours. Courses at the 400-level counted towards the minimal 30-hour requirement may not come from the major field. At the discretion of the student's advisor, a review paper focusing on the student's interest in some aspect of Toxicology might be required as a special problem (TOX 620). *Students are required to enroll in either GN 701 **or** CBS 770. All courses must be approved by the student's advisor.

MTOX students do not have a committee, and the DGP will serve as the Major Advisor to MTOX students. MTOX students do need to complete a Degree Audit through MyPackPortal.

Core course requirements for a Master of Toxicology Degree

TOX 701	Principles & Fundamentals of Molecular and Biochemical Toxicology I (3 credits)
TOX 702	Principles & Fundamentals of Molecular and Biochemical Toxicology II (3 credits)
TOX 715	Environmental Toxicology (3 credits)
TOX 601	Toxicology Seminar (2 credits maximum)
TOX 861	Responsible Conduct in Research (1 credit)
CBS 770*	Cell Biology (3 credits)
GN 701*	Molecular Genetics (3 credits)

Thesis Degree Options - MS & PhD

Commencement and Progression of Your Graduate Studies in Toxicology
The Toxicology Program offers MS and PhD degrees requiring a thesis research project. Course requirements as well as the General Toxicology Concentration, Environmental Toxicology Concentration and Molecular and Cellular Toxicology Concentration are described later in this handbook. Below you will find a chronological outline of the steps needed to begin and progress through your degree program.

Before getting started, it is important to note that whether a student is completing a MS or PhD, two forms are due every Spring from each student. Please go ahead and plan on this requirement due date of April 15.

Annual Progress Report (APR)
ALL graduate students are required to submit an **APR** by **April 15** of each year (**Appendix B**) that details their coursework and research progress. This report needs to be signed by all members of their Advisory Committee. These progress reports are then submitted to the GSC and evaluated by the Toxicology DGP. If the Advisory Committee and/or DGP determines that inadequate progress is being made towards completion of the student's program, the student and the student's advisor are contacted and advised on how to rectify the situation.

Individual Development Plan (IDP)
Students are encouraged to utilize the myIDP web site at http://myidp.sciencecareers.org to assist in developing a flexible IDP. Discuss with your mentor and document your career interests and short and long-term goals. Note what type of research approaches, skills, course work and career development opportunities may help you achieve this type of position following graduation. Download the Goal Setting and Skill Development Worksheet for Graduate Students at https://grad.berkeley.edu/idp/ and utilize this spreadsheet to document your existing knowledge/skills and skill levels, your goal for obtaining these skill sets and how these skills may apply to your short- and long-term plans. This exercise will assist you in examining your skills, interests, and values and aid in identifying scientific career paths that are in accordance with your interests. Be sure to update your IDP annually. This should be submitted at the same time as your APR.

First Semester

Meet with the Program Director (DGP) (Dr. Cowley)

The first step for all Toxicology Graduate Students is to contact the DGP (Dr. Cowley) to select courses for the first semester and for PhD students to organize their first laboratory rotation. Each **PhD** graduate student is expected to conduct three 5-week laboratory rotations during their first semester. At the end of the third rotation, the student will choose their Major Advisor and accompanying research laboratory. The DGP will serve as the Advisor to all new Toxicology Graduate Students until the student has chosen their Major Advisor at the end of the first semester. Students enrolled in the **MS** degree program, as a condition of acceptance, are required to find a research mentor to sponsor their MS research project. This should be done before the start of their first semester. Generally speaking, MS students are funded by an individual faculty member's grant and the student should initiate research in that faculty member's lab at the start of their first semester. If a MS student is funded by a teaching assistantship, the student should meet with Toxicology Faculty Members to discuss research possibilities (before enrollment) and subsequently the student should identify a Principal Investigator (PI) whose research is of interest. Once the PI/laboratory is identified and approved by both the faculty member involved and the DGP, the student initiates research in that lab.

Laboratory Rotations

All **PhD** students **are required** to conduct three laboratory rotations within their first semester. Each laboratory rotation should be approximately 5 weeks long. The DGP and GSC will have suggested start and stop dates for each rotation prior to the start of the Fall semester. Students can read about each Toxicology Faculty Member's research on the Toxicology program website and identify laboratories of interest. The student and DGP discuss the student's choices and availability of laboratories for the first rotation. Students are expected to establish their first rotation before or immediately after the beginning of the first semester. Students must discuss their choice with the DGP and, if appropriate, the Training Grant Director. Upon approval, the student then requests the opportunity to rotate with the PI. Second and third rotations are established in the same manner. Second and third rotations should be established as soon as possible to ensure that the student will have the opportunity to rotate in the labs of their choice. Upon completion of each rotation, a Lab Rotation Form (Appendix H) **must** be filled out and submitted to the GSC.

Selecting a Major Advisor

After the third laboratory rotation, which usually coincides with the end of the first semester, the student should select their Major Advisor aka PI aka Research Supervisor, who must be a member of the Toxicology Faculty. If a fourth rotation is needed to select a Major Advisor, this is acceptable. Selecting your Major Advisor is an important decision, and the student should have discussions with the faculty member being considered and the DGP. Tips to help students select a Major Advisor can be found in **Appendix A**. Pending approval by the faculty member of interest and the DGP, the student begins research in the selected Major Advisor's laboratory. Subsequently, the student and their Major Advisor develop the general research topic and hypothesis.

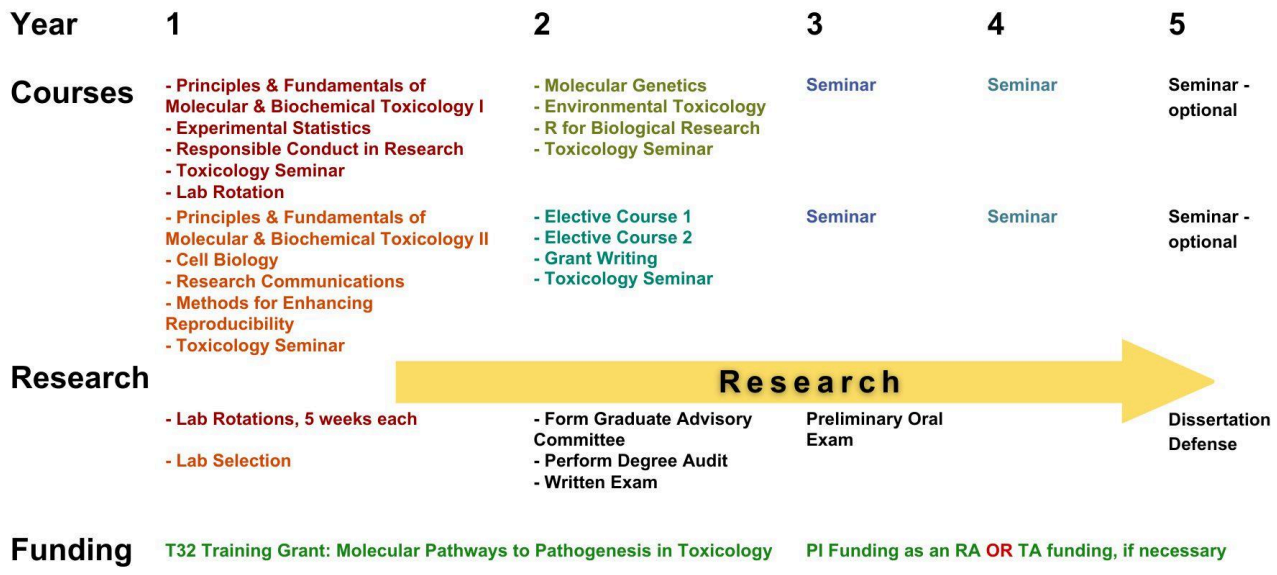
Second Semester

Statement of Mutual Expectations (SME)

Students enrolled in the MS and PhD degree programs should discuss mutual expectations with their Major Advisor, facilitated by the SME. The SME details expectations of conduct and lab culture, and provides an opportunity to agree on modes and frequency of communication. The goal of the SME is to help the student and Major Advisor understand each others' expectations and reduce the risk of conflicts arising. In the event that conflicts do arise, the SME includes information about conflict resolution. The student and Major Advisor should sign the SME and send signed copies to the GSC.

Initiation of the Research Program

All students enrolled in the MS and PhD degree programs are required to conduct a program of original research. The student and the Major Advisor select a research topic. The research program should start in the beginning of the second semester (of a PhD student's career) and continue through the entire degree program. It is expected that the research findings will make an original contribution to scientific knowledge and should be suitable for publication in professional scientific journals. Research is a critical aspect of graduate student training and successful completion of the graduate program is dependent upon the quality of this research.



Second to Fourth Semesters

Selection of Graduate Advisory Committee

An advisory committee is selected by the PhD or MS student in consultation with their Major Advisor. The advisory committee consists of at least **four** faculty members including the Chair of the Committee (Major Advisor) for **PhD** students. **MS** students have at least **three** faculty members including the Chair (Major Advisor). It is the responsibility of the committee to advise the student and to evaluate the progress of the student. The members of the committee are often chosen because their expertise complements that of the Major Advisor. Committee members should be selected who can help the student and who will be active participants in the training of the student. If the student's Major Advisor is an associate toxicology faculty member, then at least one member of the advisory committee **must** be a core Toxicology faculty member. If the student's Major Advisor is an adjunct Toxicology faculty member, then a core Toxicology member **must** serve as **co-chair** of the committee. At least one committee member needs to be a Toxicology faculty member. It is recommended that one member of the committee not be affiliated with the Toxicology program and that member also serves as the Graduate School Representative (GSR), but this is not required as the Graduate School can assign a GSR. If all members of the advisory committee are Toxicology faculty members, then the Graduate School can assign a GSR to the Committee. The GSR will sit in on the Preliminary Oral Exam and Final Oral Exam and will assure the exams are conducted fairly and according to Graduate School Policy. Once the student and the advisor have agreed to a list of potential committee members, the student will contact each prospective member to determine if they are willing to serve on the Advisory Committee. The student builds their committee through MyPackPortal, Student Homepage > Planning & Enrollment > Graduate Degree Planning > Committee. **The committee should be formed and approved no later than the end of the second year, before their written exam**. Students are to hold a progress meeting with the Advisory Committee annually, **at a minimum.**

Initial meeting with Graduate Advisory Committee

The first meeting of the Advisory Committee should occur ***before the end of the fourth semester***. Students should submit a short research plan to their committee before the meeting. The plan should cover background information, rationale for the project, hypothesis to be tested, and experimental aims. The plan should be presented orally at the first committee meeting. The committee also should be advised of the courses already takenand those classes the student intends to take.

Graduate Planner and Degree Audit

All graduate students now utilize the Graduate Degree Audit. This tool allows you and your PI to build a plan for the classes you will take each semester leading up to your graduation. The Graduate Degree Audit shows the courses you have taken as well as those you plan to take and how they fulfill the requirements of the TGP. Use the audit to track your progress, plan for future semesters, view a summary of your credit hours and your GPA. If you have courses from a previous degree you would like to request previous credit for, you would do so in the Graduate Planner.

End of Fourth Semester

Qualifying Exam for PhD Students

PhD students in the Toxicology Program take a Qualifying Exam which is composed of two parts. Part A is a written exam in the format of a NIH F31 Fellowship proposal (or a Fellowship proposal for an alternative funding body, e.g. USDA). Part B is an oral defense of the written proposal. Part A must be completed by July 1 in the summer between the second and third year. Part B must be completed by October 31 in the fall of the third year.

Before a student begins working on their Qualifying Exam, the student must have an approved committee in MyPack Portal and a completed degree audit. It is likely that students will have red X's on their degree audit and they will need to use their Planner to add future courses that will meet all of their degree requirements. Additionally, it is highly recommended that they have had their first committee meeting. A detailed description of the exam process is described in **Appendix C**. **Please note that this format is subject to change from year to year.**

Fifth or Sixth Semester – 3rd year

Scheduling Part B of the Qualifying Exam

Following the successful completion of Part A of the Qualifying Exam, it is **required** that the student completes Part B by **October 31 of year three.** In order to schedule Part B, the students must have an approved committee in MyPack Portal AND a completed degree audit. A "Schedule Exam" button appears on the student's committee page. After working with the committee and the GSC to determine the date, time, and location of the exam, the **student** clicks the button to initiate the scheduling process. The DGP and GSC receive an email with the request and then the GSC will work with the student to submit the "Request to Schedule Oral Examination" form. It is highly recommended this process take place **at least four weeks prior** to the date of the exam.

Scope of Part B of the Qualifying Exam: Advisory Committee members will review the proposal submitted for Part A in preparation for the oral exam. The proposal will be used as the point of focus in the oral questions posed. Questions posed during the exam may range from specific issues raised in the proposal to theoretical and conceptual topics of general relevance to the proposal. While the grant is the focus of most questions, the committee may ask questions to probe the student's general knowledge of toxicology.

Last Years of Study (MS and PhD Students)

Program Seminar

Fourth year students present a seminar, approximately 25 minutes in length, during the Program's weekly seminar series. This usually consists of 2 students presenting in the Fall Semester during Tuesday seminar and 2 students presenting in the Spring Semester during a separate Tuesday seminar. It is highly recommended that the student and their advisory committee meet at least once every year after the preliminary

oral exam to ensure that the student is on track and to evaluate the progress of their research. Dates of committee meetings are to be included on the APR.

Final Advisory Meeting with Graduate Advisory Committee
A graduate student is **suggested to meet with the advisory committee approximately six months before the expected dissertation defense** to provide the committee an opportunity to evaluate the research accomplished and to get the committee's input on further experimentation and approval to schedule his/her/their dissertation defense. This is a minimum suggested number of meetings, more may need to be held.

Preparation of the Thesis or Dissertation
Upon completion of the research program, the results of this research are presented to the student's Major Advisor and Advisory Committee in the form of a thesis (MS) or dissertation (PhD). Students should consult the Graduate School's ETD Guide which contains details and information on the preparation of thesis and dissertations The student is responsible for all costs associated with the ETD. The Major Advisor must approve the thesis or dissertation before it is submitted to the Advisory Committee for review. It is the responsibility of the student and Major Advisor to ensure that the material is in final form and of high quality before review by the committee. ***The Advisory Committee is responsible for reviewing the scientific merit of the work and should be given at least two weeks (preferably more) before the final oral examination date to accomplish this.*** The final thesis/dissertation may consist of an assemblage of manuscripts that have been published or submitted for publication in peer reviewed scientific journals along with general introduction and discussion. Such individual manuscripts must be submitted to and approved by members of the Advisory Committee prior to submission for publication. If deemed necessary by the Major Advisor, an embargo request can be made via the ETD system, which will postpone the release of the student's ETD.

Final Oral Examination
MS candidates*:* MS candidates are required to pass an oral comprehensive examination and thesis defense. This examination is taken during the final semester of graduate study after completion of the thesis. In this exam, the student will be required to defend the scientific methodology, merit, and conclusions of the thesis research. The unanimous approval of the Advisory Committee is required to pass the examination. After any revisions in the thesis specified by the committee have been made, the thesis is submitted to the Graduate School.

In order to initiate the exam scheduling process, the student must have an approved committee in MyPack Portal and a completed degree audit. Once both are complete, the student will click on the "Schedule Exam" button on the Committee page within MyPack. The student will work with their committee and the GSC to determine the date and location of the exam. The Master's student's Request to Schedule the Final Oral Examination form must be received by the GSC **at least four weeks prior** to the proposed examination date. The GSC will then forward the request to the DGP for

approval. After the DGP approves the request, the GSC will then forward the completed, signed form to the Graduate School for final approval. The student is responsible for arranging the date and time with his/her/their committee and reserving the examination room.

PhD candidates: The oral defense of the dissertation is the third and final examination for PhD students. This occurs in the final semester of graduate study after completion of the dissertation. In this examination, the student will be required to defend the scientific methodology, merit, and conclusions of the dissertation research. The unanimous approval of the Advisory Committee is required to pass the examination. After any revisions to the dissertation specified by the committee have been made, the dissertation is submitted to the Graduate School.

In order to initiate the exam scheduling process, the student must have an approved committee in MyPack Portal and a completed degree audit. Once both are complete, the student will click on the "Schedule Exam" button on the Committee page within MyPack. The student will work with their committee and the GSC to determine the date and location of the exam and dissertation seminar. Additionally, the student needs to complete the Request to Schedule the Final Oral Examination form, ask the DGP to sign the form and return it to the the GSC **at least four weeks prior** to the proposed examination date. It also must be received by the Graduate School at least 10 working days prior to the proposed exam date, and no earlier than 4 calendar months after successful completion of the preliminary exam. After the DGP approves the request, the form will be sent to the Graduate School for approval. Once again, it is the student's responsibility to set the date and time of the examination with the committee members ***and*** the Graduate School Representative. (The Graduate School Representative will be the same as first appointed to your committee).

It is the student's responsibility to reserve the examination room working with the GSC to determine room availability. The student must submit a title for his/her/their seminar as well as a head shot to the GSC in time for notices to be distributed. All dissertation defense seminars are to be offered via Zoom. The GSC can help to set up this link or the student can set up this link. The link should be included on the Dissertation Seminar notice. Again, the GSC is available to help with these processes, but needs to be notified ahead of time.

Thesis/Dissertation Seminar
All PhD students are required to present a formal departmental seminar describing their graduate research project (rationale, methods, data, and conclusions). This seminar is presented during the final semester of candidacy, in conjunction with the Final Oral Examination.

Applying for Graduation
Each student must apply to graduate in MyPack Portal for the term in which they plan to graduate. Students should apply to graduate prior to submitting their ETD for review and no later than the Apply to Graduate Deadline. Please follow the following steps in My Pack Portal.

1. Login into My Pack Portal Select Student Homepage
2. Select the Planning & Enrollment tile
3. Select Apply for Graduation and follow the directions provided to submit the Application to Graduate

Please note that if you have a privacy block on your records and would like your name printed in the Graduation Program, you will have to release that block so that your name can be added to the Program.

You will also need to complete the Survey on Earned Doctorate (SED), which is completed online and the Doctoral Graduation Attendance Notification (DGAN).

Electronic Thesis and Dissertation Information (ETD)
Thesis and dissertation reviews and submissions are 100% electronic. The ETD website should be your first and primary source of information for putting together your ETD. Please be sure to use the guidelines set forth on the Graduate School website for formatting and writing your ETD. Additionally, you must meet specific graduation deadlines, which occur four weeks prior to the last day of class. The ETD Guide covers all the Graduate School formatting requirements that the Thesis Editor checks for. The ETD Guide provides examples for each requirement. The step-by-step submission process section of the ETD Guide explains the process.

For the Thesis & Dissertation Review: Within 1 week of successfully passing the final oral exam **AND** acquiring all required signatures on the title page *(before the deadline)*, the student is to upload 2 pdf files into the ETD submission system. 1) pdf draft file; 2) pdf signed title page (title can be faxed, emailed, hand-delivered, mailed if unable to scan and upload). The date the thesis editor receives **BOTH** required files in the required Graduate School format is the date of the thesis review. The date replaces the in-person meeting date. Once the Thesis Editor receives both required files, the draft file will be reviewed within 3-5 business days in the order the files are received. The turn-around time may be longer during deadline times. You will have a specified length of time to make corrections and return the thesis/dissertation. If you do not return the document on time, you will not have met the graduation deadline date and will not be allowed to graduate. Therefore, you will need to register the next semester to fulfill the continuous registration policy. If you return the thesis/dissertation on time, you will be cleared for graduation.

Exit Interview
All graduate students are **required** to have an exit interview with the DGP before leaving the program. The purpose of the interview is for the DGP to obtain information directly from the student regarding the graduate training program. Prior to the interview, each graduating student needs to complete a Program Exit Interview Questionnaire. Graduating students should also complete our Alumni Information Google Form. This form will give us important information regarding your next steps - career position, title and organization as well as email contact information. At this time, you will also turn in keys (lab/building/desk) and any other departmental items to the GSC.

Graduation
Formal commencement exercises are held at the end of Spring and Fall semesters, but any student who graduates the preceding second summer session is eligible to participate in the December (Fall) commencement if he/she/they notifies the Graduate School of their intent at least four weeks in advance of the actual commencement date. Conversely, any student scheduled to graduate in the Spring or Fall semesters but not planning to attend commencement exercises should notify the Graduate School in order to have the degree conferred in absentia.

Departure from the University before Completion of the Degree Requirements
Graduate students are expected to complete all requirements for the degree before leaving the University, and it is in their best interest to see that manuscripts are submitted for publication before they depart. In rare cases, students leave the University before their final oral examination, or before the thesis or dissertation is corrected and approved by the Graduate School. Students who leave the University before completion of the degree must agree upon a time limit to finish their degree with the DGP and their Major Advisor. The Graduate School must approve the thesis or dissertation by the graduation deadline of the second semester after leaving the University.

Course Requirements and Toxicology Degree Concentrations

Doctoral students take a core curriculum and elective courses that are relevant to their research interests. Doctoral students select one of three graduate study concentrations: General Toxicology, Molecular and Cellular Toxicology, or Environmental Toxicology. The core curriculum does not vary among study concentrations. Differences in the concentrations reflect research direction of the student, and accordingly, elective course selection.

Doctoral Degree (PhD) in Toxicology

Molecular and Cellular Toxicology Concentration (TMA)

Molecular and Cellular Toxicology encompasses the study of the effects of xenobiotics on cells and cellular macromolecules and is focused on understanding the cellular and molecular mechanism of toxicant/stressor action. The purpose of the Molecular and Cellular Toxicology (MCT) graduate study concentration is two-fold: (1) to encourage scientific interactions between faculty and students interested in Molecular and Cellular Toxicology, and (2) to provide students with research training in this discipline. The MCT graduate study concentration provides opportunities for graduate students to utilize modern molecular and cellular approaches to investigate complex biological processes such as carcinogenesis, cell-cycle regulation, cellular signaling, DNA damage and repair, regulation of transcription, genetic susceptibility and polymorphisms, and the molecular/cellular basis of adverse effects of cellular stressors including cytokines, reactive oxygen species, carcinogens, radiation, and a variety of pharmacological and environmental agents. An understanding of the role and function of specific genes in the above processes is a common goal of many of the research programs within MCT.

Environmental Toxicology Concentration (TEA)

Toxicology is a multifaceted discipline that incorporates mechanistic and descriptive evaluations of the impact of toxic agents at various levels of biological organization ranging from molecules to ecosystems. Students electing the Environmental Toxicology Concentration typically approach toxicology from a top-down perspective. That is, toxicological issues are initially addressed at higher levels of biological organization (i.e., communities, populations, individuals). Research into the issue is often conducted in a downward direction (i.e., organ, cell, and molecule). Research conducted by students enrolled in the Environmental Toxicology Concentration include: 1) evaluating gene expression profiles as related to toxicity and adaptive responses of chemical-exposed populations; 2) assessing the environmental fate and bioavailability of environmental contaminants originating from pesticide use, hazardous wastes, etc.; 3) elucidating mechanisms responsible for altered sexual development of chemical-exposed populations; 4) evaluating phylogenetic relationships in susceptibility to toxicants; 5) modeling and assessing toxicity of environmentally relevant chemical mixtures. Research activities in the Environmental Toxicology Concentration involve many model organisms including fish, crustaceans, insects, and mussels.

General Toxicology Concentration (TOX)

The General Toxicology Concentration is designed to accommodate students who wish to obtain a broad toxicology background, perhaps bridging both the Environmental and the Molecular and Cellular Concentrations. Students electing this option may wish to

pursue research in more traditional areas of toxicology including fate and metabolism of toxicants, organ and cellular toxicity, endocrine disruption, mechanisms of insecticide resistance, residue analysis, teratogenesis, etc. Students electing this option may conduct research in any area of Toxicology, but their coursework may reflect a broader base of knowledge than those within the other subdisciplines.

Core course requirements for PhD students

TOX 701 Principles and Mechanisms of Molecular and Biochemical Toxicology I (3 credits)
TOX 702 Principles and Mechanisms of Molecular and Biochemical Toxicology II (3 credits)
TOX 715 Environmental Toxicology (3 credits)
GN 701 Molecular Genetics (3 credits)
ST 511[a] Experimental Statistics for Biological Sciences (3 credits)
CBS 770 Cell Biology (3 credits)
TOX 801[b] Toxicology Seminar (1 credit/Semester x 6, students must be enrolled for 8 semesters)
TOX 820 Lab Rotations (1 credit)
TOX 861 Responsible Conduct in Research (1 credit)
TOX 862 Research Communications (1 credit)
TOX 863 Grant Writing (1 credit)
TOX 864 Methods for Enhancing Responsibility (1 credit)
DSA 595 R for Biological Research (1 credit)

[a] Another graduate-level statistics course can be substituted as recommended by the student's advisory committee
[b] Enrollment required for each Fall and Spring Semester registered while in the Doctoral Program.

Research Requirements for PhD students

TOX 820 Lab rotation (most PhD students register for this research course in their first semester)
TOX 895 Doctoral Dissertation Research (6 credits minimum)
TOX 896 Summer Dissertation Research (as needed) (Do not include on POW)

A minimum total of **72 credit hours** (CR) are required for the PhD, with the majority of these credits being dissertation research. Once a student has completed 72 CR, they may register for 3 CR each semester and be considered a full time student.

Requirements for a Master of Science (MS) Degree (Thesis required)

Core course requirements for a Master of Science Degree in Toxicology

TOX 701	Principles & Fundamentals of Molecular and Biochemical Toxicology I (3 credits)
TOX 702	Principles & Fundamentals of Molecular and Biochemical Toxicology II (3 credits)
TOX 715	Environmental Toxicology (3 credits)
TOX 601	Toxicology Seminar (2 credits maximum)
TOX 861	Responsible Conduct in Research (1 credit)
CBS 770* **OR**	Cell Biology
GN 701*	Molecular Genetics (3 credits)
TOX 695	Master Thesis Research (6 credits maximum)

The MS is a research-oriented degree requiring a minimum of **30 credit hours** and a written thesis. At least 20 credit hours must be graduate-level courses. The program may include no more than 6 credit hours of research and no more than 2 credit hours of departmental seminar. Courses at the 400-level counted towards the minimal 30-hour requirement may not come from the major field. *Students are required to enroll in either GN 701 or CBS 770. The student's advisory committee must approve all courses.

Brief Description of Core Courses

TOX 693 Master's Supervised Research (variable credit)
Instruction in research and research under mentorship of a member of the Graduate Faculty.

TOX 695 Research (variable credit)
Thesis research. MS students should register for this course in Spring and Fall semesters until they have completed all coursework.

TOX 696 Research (variable credit) ***(Do NOT include on POW)***
Summer research for MS students only, not required, however if a student registers for 1 credit, FICA tax will not be taken out and the student will be able to use all university services**.** For graduate students whose programs of work specify no formal coursework during a summer session and who will be devoting full time to thesis research.

TOX 699 Research (variable credit) ***(Do NOT include on POW)***
MS students should only register for this course when they have completed all coursework. Three credits are sufficient to be considered a full-time student.

TOX 701 Principles and Fundamentals of Molecular and Biochemical Toxicology I (3 credits)
Provides information on how toxicants disrupt organ function and produce a response. The course covers the absorption, distribution, elimination, and metabolism of toxicants;

toxicant action (acute toxicity, carcinogenesis, mutagenesis, organ toxicity, etc.); chemical classes of toxicants; and toxicity testing. Offered Fall.

TOX 702 Principles and Fundamentals of Molecular and Biochemical Toxicology II (3 credits)
Provides in-depth information describing the underlying biochemical, molecular and cellular mechanisms through which toxicants produce their adverse effects. Offered Spring.

TOX 715 Environmental Toxicology (3 credits)
Examines the scientific principles and processes involved in environmental hazard, exposure, and risk assessment of environmental pollutants. The course focuses primarily upon aquatic systems. Offered Fall.

TOX 801 Toxicology Seminar (1 credit)
Departmental seminar offered every Fall and Spring semester. Invited speakers include Toxicology faculty, students, and postdocs as well as professionals from the Research Triangle Area and elsewhere around the U.S. who present their research findings. Offered Fall and Spring.

TOX 820 Special Lab Rotation (variable credit)
Most PhD students register for this research course in their first semester. Offered Fall.

TOX 861 Responsible Conduct in Research (1 credit)
Topics include responsible conduct of research through a case study approach. Topics include conducting research, record keeping, reporting research, responsibility of the research mentor, research involving human subjects, animal welfare, conflicts of interest, genetic research, and misconduct. Offered Fall.

TOX 862 Research Communications (1 credit)
This professional development course will help students understand the skills needed to be successful in a scientific career and provide guidelines of how to acquire these skills. The topics covered include oral presentation, poster presentation, guided proposal writing, scientific writing and editing, an understanding of how scientific journals and grant awarding institutions are organized and render decisions, composing a curriculum vitae, understanding management skills, and learning to evaluate proposals and articles and reviewers. Offered Spring.

TOX 863 Grant Writing (1 credit)
This course will familiarize graduate students with the process of writing an effective Specific Aims page, a critical component of any NIH/NSF or foundation-specific grant application. Offered Spring.

TOX 864 Methods of Enhancing Reproducibility (1 credit)
Reproducibility is the foundation of science and research is only of value if the published results can be repeated by other scientists. While science is considered self-correcting

over the long-term, the short-term consequences of irreproducibility are extremely detrimental to the advancement of science. This course is designed to provide instruction in the principles important for enhancing research reproducibility. Offered Spring.

TOX 893 Doctoral Supervised Research (variable credit)
Instruction in research under the mentorship of a member of the Graduate Faculty. Students should register for this course if, after registering for TOX895, more CR hours are needed to reach a total of 12 CR/semester until the student has a total of 72 CR, has passed their Preliminary Oral Exam, and completed all coursework.

TOX 895 Doctoral Dissertation Research (variable credit)
Original research in connection with dissertation in toxicology. PhD students should register for this in Fall and Spring semesters.

TOX 896 Research (variable credit) ***(Will not count towards hours 72 CR needed for degree)***
Summer research for PhD students only, not required, however if a student registers for 1 credit, FICA tax will not be taken out and the student will be able to use all university services.

TOX 899 Research (variable credit) ***(Will not count towards hours 72 CR needed for degree)***
PhD students should only register for this course when they have passed their Written Exam, Preliminary Oral Exam and have completed all course work. Three credits are sufficient to be considered a full-time student.

CBS 770 Cell Biology (3 credits)
Advanced cell and organelle structure and function and recent advances in molecular biology. Emphasis on current literature and application of research procedures. Offered Spring

DSA 595- Introduction to the R Computing Environment (1 credit)
An introduction to the R programming environment geared towards the biological sciences. Topics include installation & software setup, programming, and data exploration & analysis, with heavy focus on data visualization (graphics) within R. Students will learn analyses with a focus on shareability and reproducibility within the context of a project or mini projects. Students may bring their own data and use case datasets will be available as well. No prior R programming experience required. Offered Fall.

ST 511 Experimental Statistics for Biological Sciences (3 credits)
Basic concepts of statistical models and use of samples, variation, statistical measure, distributions, test of significance, analysis of variance and elementary experimental design, regression and correlation, chi-square. Offered Fall and Spring.

GN 701 Molecular Genetics (3 credits)
A discussion of the structure and function of genetic material at a molecular level. Consideration of both prokaryotic and eukaryotic systems. The aim is to describe genetics in terms of chemical principles. Offered every Fall

Selected Elective Courses Offered by the Toxicology Program

TOX 704 Chemical Risk Assessment (1 credit)
Initial lectures are devoted to the presentation and discussion of risk assessment models. Subsequent lectures focus on case studies related to such toxicants as ozone and dioxin. Environmental issues such as toxic waste sites and natural toxicants are also addressed. Offered Spring, Odd Years

In addition to these courses, there are several graduate-level courses available as electives to students including the ones listed below. This is not an exhaustive list of courses accepted as electives.

Elective Courses

AEC 592	Special Topics in Applied Ecology (1-6 credits)
BEC 575	Global Regulatory Affairs for Medical Products (3 credits)
BIO 588	Neurobiology (3 credits)
BIO 592	Topical Problems (1-3 credits)
BIT 510	Core Technologies in Molecular and Cellular Biology (4 cr prereq for all BIT courses—offered in Spring & Fall)
BIT 564	Protein Purification (2 credit)
BIT 565	Real-time PCR Techniques (2 credits)
BIT 567	PCR and DNA Fingerprinting (2 credit)
BIT 571	RNA Interference and Model Organisms (3 credits)
BIT 5721	Proteomics (3 credits)
BCH 553	Biochemistry of Gene Expression (3 credits)
BCH 701	Biochemistry - Macromolecular Structure (3 credits)
BCH 703	Biochemistry - Macromolecular Synthesis & Regulation (3 credits)
BCH 705	Biochemistry - Molecular Biology of the Cell (3 credits)
BCH 761	Biochemistry - Advanced Molecular Biology of the Cell (3 credits)
CBS 754	Epidemiology II (3 credits)
CBS 762	Principles of Pharmacology (3 credits)
CBS 770	Cell Biology (3 credits)
CS 518	Introduction to Regulatory Science in Agriculture (3 credits)
CS 528	Advanced Regulatory Science in Agriculture (3 credits)
CS 725	Pesticide Chemistry (1 credit)
CS 727	Pesticide Behavior and Fate in the Environment (2 credits)
CH 572	Proteomics (3 credits)
EA 501	Environmental Stressors (3 credits)
EA 502	Environmental Risk Assessment (3 credits)
EA 503	Environmental Exposure Assessment (3 credits)
EA 504	Environmental Monitoring and Analysis (3 credits)
EA 505	Environmental Assessment Law & Policy (3 credits)

GN 735	Functional Genomics (3 credits)
HS 707	Environmental Stress Physiology (3 credits)
MB 751	Immunology (3 credits)
MEA 540	Principles of Physical Oceanography (3 credits)
PA 507	The Public Policy Process (3 credits)
PA 552	Science and Technology Policy (3 credits)
PA 763	Public Policy Process (3 credits)
PHY 503	General Physiology I (3 credits)
PHY 504	General Physiology II (3 credits)
PHY 524	Comparative Endocrinology (3 credits)
ST 512	Statistical Methods for Researchers II (3 credits)
TOX 704	Chemical Risk Assessment (1 credit)

Courses not listed above but approved by the student's advisory committee can also be included toward the 6-credit hour elective requirement.

Sample PhD Student Program for Toxicology Students

Suggested course of study for Toxicology PhD students	
Register for 12 CR EVERY semester, until 72CR have been reached	
Year one	
Fall Semester	*Spring Semester*
ST 511 Statistical Methods for Researchers I (3CR)	CBS 770 Cell Biology (3CR)
TOX 701 Principles & Fundamentals of Molecular & Bio-chemical Toxicology I (3CR)	TOX 702 Principles & Fundamentals of Molecular & Biochemical Toxicology II (3CR)
TOX 801 Toxicology Seminar (1CR)	TOX 801 Toxicology Seminar (1CR)
TOX 820 Lab Rotations (1CR)	TOX 862 Research Communications (1 CR)
TOX 861 Responsible Conduct in Research (1CR)	TOX 864 Methods for Enhancing Reproducibility (1CR)
TOX 895 Dissertation Research (3 CR)	TOX 895 Dissertation Research (3CR)
Year Two	
Fall Semester	*Spring Semester*
DSA 595 R for Biological Research (1CR)	***Elective Course 1 (3CR)
GN 701 Molecular GN (3CR)	***Elective Course 2 (3CR)
TOX 715 Environmental Toxicology (3CR)	TOX 801 Toxicology Seminar (1CR)
TOX 801 Toxicology Seminar (1CR)	TOX 863 Grant Writing (1CR)
TOX 895 Dissertation Research (4CR)	TOX 895 Dissertation Research (4CR)
Year Three	
Fall Semester	*Spring Semester*
TOX 801 Toxicology Seminar (1CR)	TOX 801 Toxicology Seminar (1CR)
TOX 893 Doctoral Supervised Research (3CR)	TOX 893 Doctoral Supervised Research (3CR)
TOX 895 Dissertation Research (8CR)	TOX 895 Dissertation Research (8CR)
Year Four *If you have not reached 72CR at this point, TOX 895 hours will need to be adjusted	
Fall Semester	*Spring Semester*
TOX 801 Toxicology Seminar (1CR)	TOX 801 Toxicology Seminar (1CR)
TOX 895 Dissertation Research (2CR)	TOX 895 Dissertation Research (2CR)
Year Five	
Fall Semester	*Spring Semester*
TOX 895 Dissertation Research (3CR)	TOX 895 Dissertation Research (3CR)

Prior Credit

For the most up to date information on receiving credit for coursework before beginning your PhD, MS, or MTOX at NC State, please visit the NC State Graduate School website.
https://grad.ncsu.edu/students/degree-planning/request-prior-credit/
https://catalog.ncsu.edu/graduate/graduate-handbook/minimum-requirements/

Academic Warning, Probation and Termination

Graduate students are given a notice of **academic warning** if they have accumulated 18 or fewer hours at the 400 level or above and have less than a 3.0 GPA. Graduate students will be placed on **academic probation** if they have accumulated more than 18 hours at the 400 level or above and have a GPA in the range of 2.667 to 2.999. Students on academic probation will be ineligible for financial aid or appointment or reappointment to an assistantship or fellowship. A student's graduate study will beterminated if they have accumulated more than 18 hours at the 400 level or above and have a GPA below 2.667 or if they have accumulated 30 or more hours and have less than a 3.0 GPA. "Accumulated" in all cases is defined as the total number of hours for which a grade has been issued.

In the case of program termination, no further registration in a graduate classification will be permitted. Under extenuating circumstances, the student will be reinstated upon the written recommendation of the department and approval by the Graduate Dean. Departments have the prerogative of recommending the termination of a student's graduate admission at any time if the student is not making satisfactory progress toward the degree.

Students who are eligible to attend the first summer session are eligible to attend either or both summer sessions. For example, students who receive a notice of "Graduate Admission Terminated" at the end of the summer session may register for the second summer session unless the major department recommends otherwise.

Appendix A: Tips for Selecting a Major Advisor

The selection of a Major Graduate Advisor is one of the most important decisions that will be made in your graduate program. Each advisor and student is unique and has their own particular strengths and weaknesses as well as style of operation and interaction. The goal of the laboratory rotations is to identify advisors who will provide the training environment that the student desires and needs to reach their degree goals. These rotations are an excellent opportunity to gain first-hand information on specific programs. Some tips for gaining the information you need to make your decision are listed below:

- Ask questions of current technicians, postdoctoral researchers, and senior graduate students in the laboratory. They are extremely valuable sources of information and often are instrumental in getting a project started. However, do not choose a laboratory based solely on these individuals, since most will move on before you finish your degree.
- Ask to see copies of recent publications and current grant proposals and read them.
- Ask for specific information on current projects in the laboratory and possible projects for new students.
- Ask about the publication track record of previous students while they were in the lab. Were they able to publish while they were in the lab? If so, what types of publications did the students have? How many publications did students graduate with?
- Find out about the advisor's management style. Some faculty members like to have weekly progress reports and planning sessions, while some meet much less frequently with their students. You should be aware of how much direct contact you can expect.
- Find out about graduate students that have been in the laboratory before you and what types of positions they are in now. Inquire about current students, when they expect to graduate and how many new students may enter the laboratory.
- Ask to see the Advisor's template of the Statement of Mutual Expectations (SME). Are the expectations consistent with your own?
- Ask about long planned absences such as sabbatical leaves. This may not affect your decision to join the laboratory but be aware that it will affect the planning of projects and committee meetings.

If you are not satisfied with your three rotations, inquire about doing more. An extra month spent in the beginning is much better than ending up in a research program that you are not interested in.

Appendix B: Annual Progress Report Form

TOXICOLOGY PROGRAM ANNUAL PROGRESS REPORT – Due April 15, 2025

****Please submit completed electronic report to Mike Cowley macowley@ncsu.edu**

and your Advisor**

Reporting period: Academic Year 2024-25

Name	Semester/Year Admitted

Advisor/Committee Chair: _____

All pages are required to be filled out. Any area that does not apply, you may indicate "n/a"

Benchmark	**Month/Year** Indicate completed ('C') or expected ('E')	**Comments**
Date of last committee meeting		
Masters	-	
Formed Committee	-	
Submitted Plan of Work (due 2nd semester)	-	
Submitted Thesis to Chair	-	
Submitted Thesis to Committee	-	
Scheduled Defense	-	
PhD		
Formed Committee		
Had First Committee Meeting?		
Had a Committee Meeting This Academic Year?		
Submitted Plan of Work (due 3rd semester)		
Written Prelim		
Oral Prelim		
Submitted Dissertation to Chair		
Submitted Dissertation to Committee		
Scheduled Defense		

PUBLICATIONS, CONFERENCES, and GRANTS/FELLOWSHIPS

1. List all publications (journal articles, book chapters, etc.) that you have written since your last report and indicate their status (published, submitted, draft).

2. List all conferences attended and presentations given (name of conference, location, date, title, co-authors, talk or poster) since your last report. Please add rows to the table as appropriate.

Name of conference	Location	Date	Title	Co-authors	Talk or poster?

3. List grants/fellowships/awards received (please include the name of the grant/fellowship, granting agency, date of award, $ amount (if applicable)).

COURSEWORK and TEACHING

1. List classes taken this academic year (include course name/number and credit hours). Include grades for classes that have been completed.

2. Are there any classes you would like to take that NC State doesn't offer? If so, what are they?

3. If appropriate, list the courses for which you have TA'ed (please include the term, and if you wish, a description of any contributions to the course outside of the "typical" TA responsibilities, such as guest lectures, updates to lab materials, etc.).

SERVICE and OUTREACH

1. Professional service: list leadership activities, membership in professional organizations, offices held (president, treasurer, etc.), committee memberships, reviews of papers or proposals, etc.

Service
Mentoring
Memberships

2. List all outreach activities and extension activities or reports (include description, date, and other details, for example number of people attending if appropriate).

ACCOMPLISHMENTS and GOALS

1. What major accomplishments towards your research progress have you made this academic year?

2. What are your research goals for the next 12 months? Reflecting upon your 2024 Annual Report, did you achieve the research goals you set for yourself? What factors affected whether you were able to achieve your goals for the past year?

3. What have you done to contribute to your professional and career development this academic year? Remember that the Graduate School offers lots of relevant courses and opportunities.

4. What are your professional and career development goals for the next 12 months?

5. Are there any challenges or obstacles that you are experiencing or foresee that might affect your ability to meet your research or professional and career development goals?

FACULTY ADVISOR/COMMITTEE CHAIR COMMENTS

Please provide feedback on the student's progress and identify areas that they should focus on in the coming year.

INDIVIDUAL DEVELOPMENT PLAN

Students are encouraged to utilize the myIDP web site at http://myidp.sciencecareers.org to assist in developing a flexible IDP. Discuss with your mentor and document your career interests and short and long term goals. Note what type of research approaches, skills, course work and career development opportunities may help you achieve this type of position following graduation. Download the Goal Setting and Skill Development Worksheet for Graduate Students at https://grad.berkeley.edu/idp/ and utilize this sheet to document your existing knowledge/skills and skill levels, your goals for obtaining these skill sets and how these skills may apply to your short and long term plans. This exercise will assist you in examining your skills, interests and values, and aid in identifying scientific career paths that are in accordance with your interests. Be sure to update your IDP annually. Attach and submit your IDP with this Annual Report.

Signatures

Student:

Faculty advisor/Committee Chair:

DGP:

Appendix C: Qualifying Exam Format for Toxicology PhD Students

Qualifying Exam Format

QUALIFYING EXAM FORMAT **2025**

1) Purpose

The format of this exam aims to provide training to students in generating a successful research proposal based on their thesis research and to test students' knowledge in research as PhD candidates.

2) Eligibility

a. PhD students of Toxicology program
b. Good standing of GPA (3.00 or better)
c. Graduate Advisory Committee must be formed

3) The qualifying exam is a **two-part exam**.

a. Part A: Students will write a research proposal on their selected topic that would be suitable for submission to NIH as part of the NIH F31 predoctoral training proposal. Students conducting research outside the mission of NIH should write a funding proposal suitable for submission to alternative granting agency such as NSF, DOD, USDA, etc. Students requesting to write a non-NIH style proposal will receive guidance from the Toxicology Qualifying Exam Committee.

b. Part B: Oral defense of the proposal and demonstration of the student's breadth of knowledge to the Graduate Advisory Committee.

4) The written research proposal (**Part A**) should adhere to the NIH predoctoral fellowship format and page guidelines (or format and guidelines of appropriate funding agency). This announcement expires September 8, 2025. https://grants.nih.gov/grants/guide/pa-files/PA-23-272.html. The student's Major Advisor is expected to discuss, pre-read the proposal, and provide grantsmanship tips before submission to the Committee. The student may not use previous content written by the student's Major Advisor (text or figures). The written proposal should reflect the student's thoughts and writing. Students can seek assistance on approaches and editing from peers and other lab personnel. Following completion of Part A of the qualifying exam the research mentor can/should provide mentoring to the student on proposal development and writing before submission to external funding agencies.

5) The written research proposal should consist of:

a. Candidate's Goals, Preparedness and Potential
b. Research Training Plan
    I. Training Activities and Timeline
    II. Research Training Project Specific Aims
    III. Research Training Project Strategy
c. Biosketch

6) Students are advised to be careful with the use of any form of generative artificial intelligence (AI) to assist in writing. Generative AI sometimes misrepresents factual information, and it is the student's responsibility to evaluate, validate, and revise generated text. Student's must also ensure that all text is properly cited.

7) Students will submit their written research proposal by email to the Graduate Services Coordinator (GSC, Gretchen Feulner) by **July 1, 2025.** The GSC will then distribute the submitted materials to the students' respective Graduate Advisory Committees, and to the Toxicology Qualifying Exam Committee.

8) The student's Graduate Advisory Committee will review the written proposal and provide written feedback to the Toxicology Qualifying Exam Committee. The written feedback will follow the NIH-style of bulleted critiques providing STRENGTHS and WEAKNESSES of all aspects of the written proposal outlined above (Section 5). Additionally, the Graduate Advisory Committee will consider the following criteria:

a. Is the proposed research project of high scientific quality? Does the applicant explain the importance of the problem or critical barrier to progress that the proposed project addresses.

b. Is the prior research that serves as the key support for the proposed project rigorous? Does the applicant describe the strengths and weaknesses in the rigor of the prior research (both published and unpublished) that serves as the key support for the proposed project.

c. Has the applicant presented strategies that are experimentally robust and adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects? Students are encouraged to consult on campus statistical resources.

d. Is the research project consistent with the candidate's stage of research development?

e. Is the proposed time frame feasible to accomplish the proposed training?

Note: Students are only expected to complete the proposed research if the student is successful in obtaining external funding for the proposed research.

9) The Graduate Advisory Committee will recommend to the Toxicology Qualifying Exam Committee that the student receive a PASSING or FAILING grade for the written proposal. The student will be notified of their grade and be provided with the written feedback from the Graduate Advisory Committee by **August 18, 2025.**

10) If the student receives a FAILING grade for the written proposal (**Part A**), within **1 week** of receiving the failing grade the student will meet with their Graduate Advisory Committee and the Qualifying Exam Committee to discuss the written proposal and establish conditions to pass Part A of the exam. Following the meeting, the student will be given a **30-day extension to** fulfill the conditions set by the Graduate Advisory Committee and the Qualifying Exam Committee. If the student does not meet the conditions set by the Graduate Advisory Committee and the Qualifying Exam Committee this will result in termination from the Program. In this scenario the student

could pursue a MTOX or MS following consultation with their Major Advisor and the Director of the Graduate Program (DGP).

11) After receiving a PASSING grade, the student will be able to prepare for the oral exam (**Part B**). The student will orally defend their proposal and the breadth of their toxicology training reflecting core toxicology coursework to their Graduate Advisory Committee by **October 31, 2025**. During Part B of the exam, students will provide rationale and merit to their proposed studies and demonstrate that their breadth of knowledge is consistent with their stage of training.

12) Following completion of Part B, the Graduate Advisory Committee will recommend to the Toxicology Qualifying Exam Committee that the student receive a PASSING or FAILING grade for the oral exam.

13) The Graduate Advisory Committee has the option to award a CONDITIONAL PASS. The student will be given a **30-day extension** from the award of the CONDITIONAL PASS to fulfill the conditions set by the Graduate Advisory Committee. If the student does not meet the conditions set by the Graduate Advisory Committee or receives a FAILING grade this will result in termination from the Program. In this scenario the student could pursue a MTOX or MS following consultation with their Major Advisor and the DGP.

14) Students are **strongly** encouraged to incorporate suggestions made by the Graduate Advisory Committee and submit a completed NIH F31 predoctoral training proposal for the **December 8, 2025** due date.

15) The Toxicology Qualifying Exam Committee and the DGP will have the final decision regarding the assessment of the student's performance during the qualifying exam.

The written proposal should be evaluated based on the NIH Scored Review Criteria for Fellowship applications; however, some of the criteria are not relevant to the documents submitted for the exam and should not be considered in the evaluation. The table below indicates the criteria that should be assessed.
Members of the Graduate Advisory Committee should not provide scores for each of the criteria, but instead provide strengths and weaknesses. The Committee should also provide strengths and weaknesses of the student's Biosketch.
APASSING grade will reflect a proposal that is consistent with the expectations of the candidate's stage of research and training development.

Criteria	Details
Candidate's Preparedness and Potential	Discuss the candidate's preparedness for the proposed research training plan. Consider the context, for example, the candidate's stage of training and the opportunities available. Consider the candidate's potential to benefit from the fellowship research training plan and to transition to the next career stage in the biomedical research workforce. STRENGTHS: WEAKNESSES:
Research Training Plan	Assess the rigor and feasibility of the research training project and how completion of the project will contribute to the development of the candidate as a research scientist. Evaluate the goals of the training plan and the extent to which the plan will facilitate the attainment of the goals. Consider the project's significance in the field and beyond. The Research Training Plan includes: i. Training Activities and Timeline ii. Research Training Project Specific Aims iii. Research Training Project Strategy STRENGTHS:

Criteria	Details
	WEAKNESSES:
Biosketch	STRENGTHS: WEAKNESSES:
Additional comments	

Appendix D: Scientific Society Membership

Society Memberships

Students are encouraged to join and to participate in the activities sponsored by professional societies in the areas of their technical interests. The following list of professional organizations was compiled by the faculty and students and includes most of the organizations to which they belong. Where available, web sites are listed -- these can be extremely helpful in learning about the societies, their mission statements, publications, and membership information. Membership application forms for some of the following organizations are generally located on their web sites.

American Association for Cancer Research
American Association for the Advancement of Science (AAAS)
American Chemical Society (ACS)
American Society for Pharmacology and Experimental Therapeutics (ASPET)
Carolinas SETAC
Entomological Society of America
Environmental and Mutagenesis and Genomics Society
Federation of American Societies for Experimental Biology
Genetics and Environmental Mutagenesis Society-NC
International Society for the Study of Xenobiotics (ISSX)
International Society of Regulatory Toxicology and Pharmacology
National Academy of Science
North Carolina Chapter of Society of Toxicology (NCSOT)
Sigma Xi- The Scientific Research Society (SRS)
Society for Neuroscience
Society for Risk Analysis
Society of Environmental Toxicology and Chemistry (SETAC)
Society of Toxicology (SOT)

Appendix E: Summer School Registration

Summer Terms
Graduate students are not required to register during the summer.

Students not enrolled in the Summer maintain their access to the library, but other facilities that are funded by student fees, such as the gym and Student Health Services, cannot be accessed without paying for a summer membership.

Students who are employed as Graduate Research Assistants, but who are not enrolled in the University during a period of at least five weeks, **are subject to Social Security tax withholding**. Specifically, given Federal tax law as it relates to employment outside of student status, Social Security taxes will be **withheld in June** for RAs who are not registered in Summer Session I and **in July for RAs** who are not registered in Summer Session II. The source of funds that pays the stipend must pay the same amount of Social Security tax as is withheld from the student's paycheck during these months.

Two special registration categories are available for Graduate Research Assistants who would not otherwise take courses in the summer: XXX 696 (Summer Thesis Research) and XXX 896 (Summer Dissertation Research), where XXX represents the course prefix of a specific department/program. Each of these courses is for 1 hour of credit, which is considered full-time enrollment for tax purposes, for the Summer and which run for 10 weeks, beginning the first day of Summer Session I and extend into Session II. Social Security taxes will not be withheld from the June or July paychecks of RAs who register for either 696 or 896.

Please note that students who are not registered at least half time during the Summer are ineligible for Financial Aid during that period.

Summer Registration
To: Departmental Payroll Coordinators
From: University Payroll
Subject: **Student Employee Social Security and Medicare Exemption for Summer School Sessions**

As summer school academic sessions approach, we would like to remind you of the requirements for exemption from social security and Medicare (FICA) tax withholding for student employees for those sessions. IRS regulations require that a student be enrolled at least half time in a session to be exempt from FICA tax withholding. Half time enrollment for a summer session is defined as follows:

1. At least **3 credit hours for undergraduate** students.
   Undergraduate students enrolled in 10-week courses will have credit hours applied to both summer sessions. If the course is, at least 3 credit hours, the FICA exemption for both Summer Session I and Summer Session II will be granted.

2. At least **1 credit hour for graduate** students.
   In addition, graduate students enrolled in courses numbered XYZ696* or XYZ896* in Summer Session I will also be programmatically exempted from FICA withholding for Summer Session II.

More information on Graduate Student Summer enrollment can be found here: https://grad.ncsu.edu/students/rules-and-regulations/handbook/3-14-minimum-enrollment-requirements/

Reminder: International students on visas with "nonresident tax status" are exempt from social security and Medicare tax withholding during their first five calendar years of student status, provided they have supplied proof of this to the University Payroll Office. Questions concerning whether an international student is exempt from FICA tax withholding should be referred to Michelle Anderson, Nonresident Tax Specialist at 515-4370 or via e-mail, michelle_anderson@ncsu.edu

Please share this information with all student employees within your unit.

*The prefix for thesis research courses shown in the Course Catalog depends upon the department offering the course, but the course numbers will be 696 or 896.

Appendix F: Student Fees Payment

1. If you are in your first or second year of the Toxicology PhD program, with guaranteed funding (either directly through the TG or a provost match), your student fees will be paid directly. You do not pay the bill. Do not make arrangements to pay the bill. If you are unsure, please contact the GSC and the GSC will double check for you.
2. If you are a third year + student and paid directly by your PI's grants or other PI funds (aka a RA), **if you do not wish to pay your fees all at once**, you are eligible to pay your student fees 1 of 2 ways. Choose the plan that works best for you and set it up immediately after the bill for the upcoming semester is issued. The supplemental TA that you receive that is in the amount of your student fees + 25% will be set up after you are billed for the semester. This RA will be paid out over 6 biweekly paychecks to match the payroll deduction described in (a) below.
    a. Pay your student fees through payroll deduction, because NCSU pays you through the University Payroll System. Be sure to select the correct term for which you are paying fees. **OR**
    b. You can also set up a monthly payment plan. There is a fee associated with this.
3. If you are a third year + student and **only** on a fellowship, with no other type of funding, you can either pay your student fees all at once directly **OR** use a monthly payment plan. Unfortunately, you **cannot** use payroll deduction.
4. If you are a third year student, and on a fellowship AND and RA/TA, you can:
    a. Pay your student fees through payroll deduction, because NCSU pays you through the University Payroll System. Be sure to select the correct term for which you are paying fees.
    b. **OR** You can also set up a monthly payment plan.
    c. OR You can pay all at once**.**
    The caveat is, if you choose payroll deduction, your RA/TA must be greater than or equal to the amount that you will owe in fees.
5. **In some cases, your PI may have a funding source that allows for direct billing of your student fees. If this is the case, the GSC will let you know and pay your fees directly (using a process termed a GA-1) at the beginning of the semester. It is a rare occurrence that a PI has this sort of funding source available.**
6. If you are a Masters student, you are responsible for the payment of your student fees. In some cases, your PI may pay your student fees. If this is the case, please see #2 above. Additionally, check with the GSC to make sure this in fact the best scenario for you to pay your fees.

Appendix G: Lab Rotation Form

NC STATE UNIVERSITY **Toxicology Program**

Lab Rotation Form

Rotation Number: _____

PhD students are required to conduct three laboratory rotations within their first semester. This form acknowledges an agreement between the PI and student for completion of a supervised doctoral research rotation. Each lab rotation should be approximately 5 weeks long. Rotation forms for the first rotation of Fall semester should be submitted no later than the end of the first week in September. Subsequent rotation forms should be submitted at least two weeks prior to the start of the rotation.

Student Name: _____ Student ID number: _____

PI Name:_____ PI Lab Location:_____

Rotation Start Date:_____ Rotation End Date:_____

Student Signature:_____ Date:_____

PI Signature:_____ Date:_____

Return completed form to:

Gretchen Feulner
Toxicology Graduate Services Coordinator
850 Main Campus Drive
gefeulne@ncsu.edu

Appendix H: Toxicology Program Annual Symposium

Each Spring, usually the Thursday after Spring graduation, the Toxicology Graduate Program hosts a Toxicology Program Symposium. Participation is **mandatory** for all students in the Toxicology Graduate Program and welcomed for students in Toxicology labs, but not necessarily the Toxicology Graduate Program.

First through third year students present 5-10 minute talks ("flash talks") while fourth year + students present a poster of their research. Both talks and posters are judged by a group of lab managers, post docs, and faculty members. Awards are given to the top talks and poster presentations at the end of the day.

The Ernest Hodgson Travel Award

The Ernest Hodgson Travel Award recipient is announced each year at the Toxicology Symposium. All current Toxicology graduate students may apply for this award. It is sponsored by the Toxicology Graduate Program and is in the amount of $500. It is given to a current student that plans to attend and present either a poster or talk at an in-person scientific meeting or conference within the next year.

Toxicology Founders Fellowship Award

This award(s) will be presented to a PhD candidate (i.e., to a student who has completed and passed their oral exam). This 3rd-5th year candidate cannot have defended their dissertation prior to the May 1 application deadline. The award will be based upon the merit of an outstanding student and their stated purpose for how the supplemental fellowship funds will further their graduate experience (e.g., travel to conferences, workshops, or other scientific meetings not supported by their adviser). A review committee composed of Toxicology faculty will solicit and evaluate applications according to a scoring rubric to determine the recipient(s).

The recipient(s) must spend the allocated funds before **May 1** of the following year. The recipient(s) is also required to provide a brief summary (one-page maximum) of how the fellowship award furthered their graduate experience by May 1 of the following year to the Toxicology GSC.

In past years, this award has been up to $2,000. The amount of the award and the value of the award will be determined by the amount of funds available in the endowment each year. This will also be awarded at the Annual Symposium in May.

Appendix I: Statement of Mutual Expectations

NC STATE TOXICOLOGY PROGRAM
STATEMENT OF MUTUAL EXPECTATION (SME) FOR
GRADUATE RESEARCH ASSISTANTS AND FACULTY MENTORS
XX Lab

The NC State Department of Biological Sciences is the home department for the graduate program in Toxicology. To ensure mutual understanding of expectations and responsibilities between a graduate student and faculty mentor, the Department of Biological Sciences requires that a Statement of Mutual Expectations (SME) is prepared at the start of every graduate research assistantship and updated annually (with completion of the student annual report). Specifically, the SME aims to:

- Assist the student in understanding their responsibilities and how to meet their mentor's expectations.
- Assist the mentor in providing a safe, mutually respectful, and productive training experience for the student.
- Establish a clear mechanism for the student and mentor to resolve conflicts should they arise.

Students Can Expect From Their Mentor:

Respect

- Respect as a person, student, and professional employee including acknowledgement and acceptance of differences in culture, ethnicity, gender, socioeconomic status, and other dimensions of diversity. Mentors will attend a workshop on implicit bias every four years.
- Commitment of time, effort, and financial support for the student (stipend, tuition, and benefits) and their research project.
- Ability to communicate and express concerns without fear of retribution.
- Understanding of the student's commitments to course work and RA/TA responsibilities outside of research commitments.

Communication and work environment

- Mutually agreed upon expectations about the frequency and format of communication.
- Clear communication about project timelines, availability and nature of funding, level of effort and research expectations.
- Timely review of and feedback on research and academic progress.
- Acceptance of feedback and discussion of difficulties without retribution.
- Willingness to resolve potential conflicts that arise including academic, research, financial or interpersonal issues.
- A safe physical work environment that complies with all relevant institutional requirements (e.g., safety inspections).

Guidance on research and degree completion

- Guidance on planning and managing the expectations and timing of research projects from conception to designated goals (e.g., publication, thesis defense).
- Understanding of setbacks (e.g., mental health issues, health issues, major life changes, global pandemics) and the ability to adjust expectations and training accordingly.

- Appropriate training and resources to successfully complete research projects.
- Rules for how research records and results should be maintained.
- Guidance on professional and ethical standards.

Guidance on professional development

- Support to participate in career development activities (e.g., allowance of time away from research to attend meetings) and guidance in building professional networks.
- Advice on advancing professional goals in the direction most desired by the individual student.

Teamwork

- Clear expectations about interpersonal communication and behavior among members of the research group that minimally assumes inclusivity, collaboration, and mutual respect.
- Understanding that the mentor will help to ensure that the work environment is collegial, inclusive, equitable, and safe for all members of the research group.

Mentors Can Expect From Their Student:

Respect

- Respect as a professor and person; recognition of the value of their time and responsibilities within and outside the university and acceptance of differences in culture, ethnicity, gender, etc. Students will attend a workshop on implicit bias at the beginning of the assistantship.
- Understanding that mentoring is tailored for each individual student and adjusted for progress in the degree program.

Communication

- Mutually agreed upon expectations for frequency and format of communications.
- Regular progress reports including what has and has not been accomplished.
- Reasonable, mutually agreed upon expectations of the time frame necessary to give feedback and review results.
- Willingness to resolve potential conflicts that arise including academic, research, financial or interpersonal issues (see conflict resolution resources below).
- Notification, as soon as possible, if the student decides to leave the lab or program sooner than expected including temporary leave-of-absences.

Commitment & Productivity

- Understanding of the expectations of the degree program, mentor and research team, and RA/TA responsibilities.
- Learning and progressing through the program, with progressively more independence as the student advances.
- Commitment and steady effort to make progress towards mutually agreed upon results and deliverables, adhering to timelines and deadlines.

Responsibility

- Maintain scientific rigor and avoid any scientific misconduct, particularly in publications, presentations, and funding proposals.
- Safe, ethical, and efficient use of resources.
- Adherence to professional and safety standards.
- Taking feedback seriously and revising research plans in response, as appropriate.
- Maintaining research records according to the mentor's guidance.
- When graduating or leaving the team, leaving behind organized research materials, and data.

Teamwork

- Working collaboratively with other members of the research team including supporting and mentoring others in the research group.
- Sharing responsibility for laboratory upkeep and maintenance.
- Adhering to deadlines.

Conflict Resolution

It is the goal that mentoring relationships will be safe, inclusive, and productive; however, it is possible that conflicts may arise. Mentors and students are encouraged to resolve conflicts and reach mutually agreed upon resolutions directly. In cases in which the student or mentor does not feel comfortable working directly with the other party, they are encouraged to seek other assistance. The following contacts can be leveraged, not necessarily in this order or in a mutually exclusive manner, to help navigate the conflict:

- **Program Graduate Student Coordinator (GSC):** Gretchen Feulner, gefeulne@ncsu.edu
- **Director of Graduate Program (DGP):** Mike Cowley, macowley@ncsu.edu
- **Director of the Toxicology Training Grant:** Seth Kullman, swkullma@ncsu.edu
- **Department Head:** Carolyn Mattingly, cjmattin@ncsu.edu
- **Graduate School Liaison:** Jessica Whittier, jwhitti@ncsu.edu
- **University Counseling Center:** (919) 515-2423, https://counseling.dasa.ncsu.edu
- **Ombuds**: The Ombuds office is available for faculty, students and staff to discuss concerns related to any aspect of an individual's NC State experience. An independent, neutral, confidential, and informal office at NC State, Ombuds Services are available as a personal guide for conflict management, prevention and resolution while advocating for fair processes and empowering individuals to successfully navigate NC State. Plans to resolve conflicts can be developed confidentially with the help of the Ombuds office.
    - Student Ombuds: 919-513-3401, https://ombuds.dasa.ncsu.edu
- If a conflict involves discrimination, harassment, or abuse based on identity (sex, gender, race, color, height, disability, religion, sexual orientation, country of origin, age), contact the Title IX Office at NC State: 919-515-0574, https://diversity.ncsu.edu/title-ix
- For support with finances, or housing/food security, contact Feed the Pack Food Pantry (as well as your program's leadership; e.g., GSC, DGP, Head): https://feedthepack.dasa.ncsu.edu/

NC STATE TOXICOLOGY PROGRAM
STATEMENT OF MUTUAL EXPECTATION (SME) FOR
GRADUATE RESEARCH ASSISTANTS AND FACULTY MENTORS

Student name _____
Mentor name _____
Work period for this SME _____

This Statement of Mutual Expectations (SME) is intended to outline student and mentor responsibilities and operational procedures that will ensure a safe, inclusive, mutually respectful, and productive research experience. Please provide the following details for the designated work period covered by this SME. The SME must be updated at least annually.

Responsibilities of the student. Outline specific duties, goals, deliverables, reporting structure and timing among any other relevant details. The level of detail may evolve as the research program progresses. This information can be revised annually.

Responsibilities of Supervisor. Outline details about a training schedule (if applicable), supervision and style (e.g., frequency of meetings and feedback), project design and prioritization process, research budget, and procedures for getting approval for and ordering reagents/supplies.

Scheduling: Provide details about expected student work hours (aligned with graduate school guidelines), allowances for remote work (if applicable), mentor's office hours, regularly scheduled mentor-student meetings, degree of flexibility in the work schedule, and vacation/holiday expectations with respect to duration and lead time for such requests.

Procedures and Best Practices: Provide details on required trainings, standard laboratory methods, preferred suppliers for reagents, sharing of reagents in the laboratory, key contacts, required recordkeeping (e.g., type of lab notebooks to be used and how they will be provided), safety and security protocols, and procedures for ordering supplies.

Professional Development and Individual Development Plan: Include skills to be learned during the appointment (if any), training resources other than those provided directly by the supervisor, expectations regarding publishing (e.g., what contributions merit authorship), travel, and presenting at meetings (e.g., conferences that the trainee is expected to attend and how participation will be covered financially).

Organizational Culture: Provide details about office/workspace assignments, dress codes per institutional requirements (e.g., laboratory safety), appropriate titles and means of address, and other cultural and social expectations that will ensure an inclusive work environment for all members of the research group.

We met in person to review this agreement on the date noted below. We agree to the terms outlined including leveraging available resources to resolve any conflicts that may arise.

Student	**Mentor**
Name:	**Name:**
Signature:	**Signature:**
Date:	**Date:**

Appendix J: Graduate Toxicology Minor

Graduate students whose major field of study is in a subject other than Toxicology are welcome to take courses and to earn a minor in toxicology.

For master's degree students, TOX 701, TOX 702 and TOX 715 are required. Ph.D. students who minor in Toxicology are required to take TOX 701, TOX 702, TOX 715, TOX 801 and 3 credits of additional toxicology electives. One faculty member of the Toxicology program must be on the student's advisory committee to represent the minor.