

# Teaching Assistant and Instructor Manual

*The University of North Carolina at Greensboro*

*Department of Chemistry and Biochemistry*

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## **Introduction**

Welcome to the Department of Chemistry and Biochemistry! We hope you enjoy your stay at UNCG and in our department. While here, you will be involved in many aspects of department life. You'll have opportunities to get to know other graduate students, faculty, and undergraduate students through multiple venues. Enjoy the richness of the personal and professional inspiration they provide. We hope your experience here will be transformative both professionally and personally. Your primary objective for coming here was probably to obtain a graduate degree, and you know a fair amount of coursework will be involved. In addition, a major research project will be required for your degree. You'll be pushing back the frontiers!

As a Graduate Instructional Assistant (GIA), you will participate in the teaching mission of the department. We consider you an integral part of the teaching program and look forward to working with you during your teaching assignment. The Department takes a lot of pride in the quality of instruction we offer and we hope that you will do your best to uphold that teaching tradition. Look at the teaching awards posted in the Sullivan 4<sup>th</sup> floor lobby to see all of the faculty who have won teaching awards!. We welcome your involvement. It's exciting and rewarding to be able to inspire students and to watch them grow in knowledge of the subject (chemistry) and the process (science) that we love. But beyond that, there is an educational experience involved that helps the students grow. Nurture the person as well as their knowledge base in chemistry.

Instruction in the lab courses is a team effort so feel free to make comments and suggestions. However, we also have to take into account other team members- faculty, instructors, support staff- and we try to provide a uniform, high quality instructional program for all students as well as a workable environment for all aspects of the program.

As an overall philosophy, we aim toward helping our students become independent thinkers and problem solvers while experiencing the thrill of discovery and new experiences. Often times, to work with the number of students we do, procedures and processes are systematized. Your role as instructor is to treat each student independently, as an individual, and to help the student become a scientist, an investigator, and a thinker during the lab sessions. Think about your real science experiences- those where you were faced with a scientific question and had to design an investigation to obtain a high quality, reliable answer to that question. We aim to give the students that same kind of experience. Even though the student experiments have been done hundreds of times, try to give them the perspective that they are original investigators and have to answer the question from the outcome of their scientific investigations.

We are providing you with this manual as a reference guide for the multitude of items which are involved in laboratory instruction.

## **Role of Graduate and Teaching Assistants**

As a Graduate Instructional Assistants (**GIA**), you contribute a great deal to the instructional program of the Department of Chemistry and Biochemistry because of your chemistry background and your potential for providing quality instructional support for the Department.

Half time GIA's can expect to devote a maximum of 20 hours per week at the tasks of preparation, teaching, grading, and tutoring. Often less time is required. Your position as GIA may result in serving in one of several specific roles. You may serve as lead instructor in the general or introductory chemistry laboratories. You may serve as assistant in upper level lab or lecture courses. Or you may serve as grader or as other instructional support person in a lecture class. The general information contained here is important for all. However, much of the information is oriented toward lead instructors in the prelab or lab situation.

The Graduate School at UNCG specifies two types of graduate assistants- **GTA** and **GIA**. You are likely classified as a GIA. The Graduate Teaching Assistant designation is for those who have earned 18 graduate credit hours in the discipline and have been credentialed to serve as an instructor of record.

## Teaching in the Laboratory

There are several roles that may be assigned for your work. The **Prelab Instructor (PI)** is responsible for preparing and presenting the prelaboratory classroom discussion. The **Section Instructor (SI)** is responsible for supervision of the students in the classroom and laboratory, grading reports and quizzes, working with the prelab instructor in preparing quizzes, managing grades, enrollment and other administrative aspects of student work in the course. Your work may be supported by an undergraduate **Lab Assistant (LA)** who can contribute by assisting instruction in the laboratory, managing materials (refills, ice, etc), and cleaning and restocking. You will likely be the supervisor of the lab assistant. In upper level labs, your role as **Graduate Instructional Assistant (GIA)** involves supporting the lead faculty member. You are all part of a team, and everyone should pitch in during the laboratory wherever work is needed. Assistants will help with the teaching. Instructors will help with managing materials and clean up.

In whatever role you play, the value in your teaching is not measured by how much you know, but by how much your students learn. They will learn a) concrete facts, b) processes by which problems are solved c) how to think and d) laboratory technique that presumably is important for their profession (even nurses need to make measurements, keep records, manipulate instruments, and handle equipment). A good instructor will foster each of these learning goals. There are several related items which must be attended to if quality instruction is to exist within the environment of the teaching labs.

## Expectations

**Safety**- This is obviously of primary importance. Familiarize yourself with standard and local safety rules. All TAs must attend the departmental chemical safety and biological safety seminars at the start of the fall semester. Know the location of and how to use the safety equipment. In case of emergency, call Campus Police at 334-4444 or 911. There are emergency phones in each hallway. Be sure to convey to the operator the seriousness of the situation. Report all injuries or emergency situations to your lab coordinator. Please report all safety incidences to the Safety Committee of the Department.

In the lab, students AND instructors must wear safety **goggles at all times**. Students, assistants, and TA's must also wear close-toed shoes that cover the entire top of the foot. These give adequate protection from broken glass or spilled chemicals. Crocs, sandals, ballet slippers, and even moccasins (TOMS styled shoes) may look OK, but they tend to be marginal and are unacceptable. Clothing must provide complete skin protection all the way to the ankles.

**Attendance**- You are expected to be in the lab and at your office or tutoring station as scheduled. If a desperate situation arises, YOU MUST FIND A REPLACEMENT. The students depend on you and absences cause significant disruption. There are professional situations that arise where you must be away. To minimize the disruption, find a replacement for that session. Do not switch sections. (Students depend on their regular instructor and we want to minimize disruption.) If someone fills in for you, fill in for others when they must be away.

**Preparation**- You are expected to study the laboratory experiment and related instructional information well before lab time. There will be meetings with the lead instructor each week. The best way to learn the details of the experiment is to work through it on your own.

For each first time assignment in a given course, TA's are expected to attend an earlier prelab and lab session of each experiment before you actually lead one on your own. This is usually done by pairing a new TA with an experienced TA in a double section for the first assignment. You will learn from the experienced instructor and from the student lab work in that lab session.

Even if you are not in this "first time" category, you should check the physical setup of the lab room and the location of equipment and chemicals before your prelab presentation. Be sure everything is ready for your students.

**Prelab**- The Prelab Instructor will be presenting the prelab discussion to the students in your assigned sections. The prelab will cover the conceptual material that students should learn, review, or focus on before performing the lab experiment. In addition, the prelab presentation must cover the experimental details for the procedure- use of equipment, steps in the procedure that need to be clarified or emphasized, techniques that students should use, and of course, safety precautions. Try to engage students during the prelab session. They should read and study the experiment before coming. Ask them questions. Involve them in a class discussion. Have them help with the development of the background material for the experiment. In many cases, there will be videos that illustrate the experimental techniques.

**Supervision of the Lab-** You are expected to be in the lab AT ALL TIMES when the students are working. This is important both for the purpose of being there to help students and for safety considerations- you are responsible for overseeing the safety of the students. *INSTRUCTORS ARE NOT ALLOWED TO HAVE CELL PHONES OR COMPUTERS IN OPERATION DURING LAB EXCEPT FOR LAB PURPOSES.*

You should be *working* in the lab. This involves circulating through the lab so you will be available to answer questions. Don't wait for the students to come to you! Say something to every student every lab period, to make them comfortable and to make them feel important and part of the class. Watch for problems. You can avoid a lot of student pitfalls by catching errors before students get too far into a procedure. Also challenge students to think. Ask them questions (without putting them "on the spot") to encourage them toward understanding. DO NOT automatically answer their questions (unless it's procedural). Lead them through the thought processes or logic which will allow them to answer their own question. In particular, make them use their experimental results to get answers.

**Grading-** Grading of lab reports, notebooks, and formal reports is part of your responsibility. One of our great challenges in the department is to maintain uniform grading across all sections. Therefore, an appropriate grading scale will be provided to you in the syllabus template you will receive. Answer keys and rubrics for all graded work will be provided. We find that typical lab sections have a B average for work in the lab, so your section average should come out close to that.

In order to provide students with timely feedback and also allow us to reflect on a previous week's experiment, **all lab reports should be returned no later than 1 week after they have been turned in.** Also, all grades must be recorded in CANVAS before returning any work to the students. Your records will be reviewed occasionally during the semester to check consistency across sections, and also at the conclusion of the semester before final grades are assigned. A record of the final grades and how the final grade was established must be maintained by the Department for five years. A copy of your grade record must be downloaded and printed from CANVAS and turned in to the lab coordinator with the final grade assignment.

**Office/Tutoring Hours-** You must set up at least one hour per week for office/tutoring hour. The time should be convenient for students- after the lab meeting but before the report is due. For safety reasons, the office hour should not be in a research lab. The tutoring will be held at the table in Room 428 NIB/NSCI. During tutoring, you will be expected to provide drop-in tutoring for students in any 100-level lab or lecture. If one of your students needs a confidential consultation during your tutoring hour, leave a note at the tutoring station and retire to a private meeting room. Note that private consultation may be needed and that means not in earshot of other graduate assistants. Find a private corner or another room for discussion of sensitive matters with students.

**Supervision of Lab Assistant(s)-** You are the immediate supervisor of any LA assigned to your lab section. Take the responsibility seriously and direct him or her as to the lab assistant duties. A copy of those are provided in the Appendix. A copy will also be given to the assistant as he or

she begins work. **You are responsible for signing the Sign Out form as the LA leaves.** One purpose is to assure that you and the assistant have agreed that all of the lab duties have been taken care of. A secondary purpose is to confirm the hours worked by the assistant.

**Demeanor- Be courteous and helpful** to students. Circulate through the lab. Students may be uncomfortable initially in the lab setting. Try to set them at ease. Teaching is a communication process. Interactions with each student will be unique. Be sensitive to each student's needs and personality.

**Clothing-** You are representatives of the Department of Chemistry and of UNCG. You should wear neat clothing, shoes which cover the feet (no sandals or open-toed shoes), long pants, and eye protection at all times when you are in the lab.



## University and Department Policies

**Tutoring for a Fee-** Graduate Teaching Assistants and other staff are not permitted to receive payment from students to whom they will be assigning a grade, or have an influence on the grade. This applies even if the payment is for tutoring associated with a course outside of that for which the instructor will be assigning the grade. The suggested approach is to encourage the student to seek help during regular office hours or departmental tutoring hours, or to encourage the student to hire another graduate assistant as a private tutor.

In other words, you are NOT allowed to *tutor for a fee* any of your students or any students for which you could remotely influence the grade. If students are impressed by your teaching and ask you for help with lecture material, you may offer to do so for free, or you may suggest another graduate assistant as a tutor.

**Students Working in Lab Outside of Scheduled Lab Times-** There is a policy, with good safety practice behind it, that students are not allowed to work in the lab if they are not supervised. If any instructor (faculty, staff, TA) feels that it is necessary for students to work outside of scheduled lab time, that instructor must be there to supervise the lab work, even if it is just weighing or taking a melting point.

**Sexual Harassment-** UNCG has statements and policies concerning the undue favoritism ([http://policy.uncg.edu/university-policies/undue\\_favoritism/](http://policy.uncg.edu/university-policies/undue_favoritism/)) and especially sexual harassment between instructors and students ([https://policy.uncg.edu/university-policies/sex\\_gender\\_harrassment/sex-gender-harrassment.pdf](https://policy.uncg.edu/university-policies/sex_gender_harrassment/sex-gender-harrassment.pdf)) Please keep your actions and words, both in and out of class, in line with accepted and *highly professional* conduct.

**GA and TA Evaluations-** Each first time TA will be evaluated midway through the semester with a written student evaluation. Others may request a mid-semester student evaluation. The lab coordinator will also observe each TA at least one time during the semester, announced for first time TAs and unannounced for returning TAs. A written student evaluation will also be administered for all TAs at the end of the semester. After grades are turned in, you may see the results of the student evaluations. These evaluations are to help you become a better instructor and therefore strengthen our program, so please take criticism constructively.

These evaluations are required by upper administration and are supported by the Department of Chemistry and Biochemistry. As indicated earlier, faculty place a great deal of value in the quality of instruction in the Department. Many students will see YOU as the department and your performance reflects directly the opinion of the students about the entire Department.

**Award-** Each year a TA is chosen to receive the Outstanding Graduate Teaching Assistant Award, a monetary award for the TA who has performed exceptionally well in his or her duties. The award reflects more than the grade average of the students and the evaluations. The award committee considers your ability to work well with the rest of the staff, your dedication to the job, and your conscientiousness. In addition to the monetary award listing, the award on your resume will impress future employers or Ph.D. schools.

## Expectations of Students

**Safety**- This is repeated because of its importance. Know the location and how to use the safety equipment, including fire extinguisher, fire blanket, safety shower and eye wash. Carefully go over the rules in the prelab. There will be a video to support the information in the lab manual. Students must sign a “Safety Commitment” form (provided in the lab manual). It is your responsibility to be sure that every student has signed one before working in the lab. Keep these in your files for the duration of the semester, and longer if it appears that there may be a situation.

Students must wear “Chemical Splash Goggles” as the appropriate eye protection in a chemical environment. These differ from safety glasses that provide protection from flying objects, etc. **Safety glasses are not acceptable.** Goggles can be purchased at the Bookstore or many other locations. STUDENTS WHO DO NOT FOLLOW SAFETY RULES SHOULD BE ASKED TO LEAVE THE LAB AND RECEIVE NO CREDIT FOR THAT DAY’S EXPERIMENT. If you lay down the law it will be followed- don't get lax with this crucial safety requirement.

If there is some problem with students wearing the usual full goggles, discuss the situation with them. If a valid reason exists, we will review the situation and have them sign a waiver form.

Students must also wear close-toed shoes that cover the entire top of the foot. These give adequate protection from broken glass or spilled chemicals. Crocs, sandals, ballet slippers, and even moccasins (TOMS styled shoes) are NOT acceptable.

**Attendance**- Students are expected to be in the entire prelab and lab sessions unless they have an acceptable university excuse (illness or death in the family). Take attendance each week. If they request an excused absence, they can be expected to have written confirmation of this. Encourage them to visit the Gove Health Center if they are ill. It's free and they can get an excuse. In case of a family death, they can bring a death notice or funeral program. Use your judgement on the excused absences. Don't add to the trauma of difficult times. **WE DO NOT ALLOW DELAYED MAKEUPS BECAUSE OF EQUIPMENT, MATERIAL, AND SUPERVISION REQUIREMENTS.** If a student has a legitimate excuse, and there is a need to have the student complete a lab activity, the student may do a dry or virtual lab. Discuss this situation with the lab coordinator. **DO NOT** let the student just copy data from another student. The instructor is responsible for providing the necessary data.

Occasionally, a student will miss lab for an acceptable reason. In cases where the absence should be anticipated (funeral, UNCG athletic or performance participation, requirement for another class, etc) the student should attend another lab section if possible. In other cases (illness, accident, etc) the absence cannot be anticipated. In each case, we want to promote learning. Students who miss with an acceptable reason, but not a University-type excused absence, should be expected to do a reasonable amount of work, on the order of what is typical for the missed work.

For excused absences, students are really excused. They may receive a dry lab or simulation lab assignment. If not, their grade is based entirely on their other work, with the weighted semester average scaled appropriately.

We often have students waiting to get into lab sections near the beginning of the semester. We can provide space more readily if we drop the students who are not attending. To do this conveniently, we need a written statement in your syllabus. "Students who do not attend class the first two class meetings (usually two weeks) will be dropped from the course." We merely need to send their names to the Registrar.

There are occasions when students think they can skip prelab and they just attend the lab. Be alert to these situations. **If a student skips prelab, they are not allowed to do the lab at that time. Students who do not get to prelab on time can be restricted from doing the lab experiment.** Safety and safe performance of procedures dictates that students must be in prelab to get appropriate information.

If students cannot make a lab for other reasons, they have the opportunity of making up the lab in another section. Ask them to check with the other instructor before attending. We often have full sections and space can be limited. *Have the other confirm completion of the experiment and communicate to verify the attendance.*

**Lab Reports-** Reports are usually in the form of Report Pages and electronic submission is common. Often the report is a quick summary of data and answers to questions. This is done for grading convenience. In addition, CHE-112,115 students are expected to keep a scientific notebook and will write formal reports for a limited number of experiments.

Gen Chem: Reports are typically due before prelab the following week. The Lab Coordinator will establish a policy that should apply to late reports for all sections.

If students have questions about the grading of their paper, it may be handled in one of three ways. If it is simple, it may be handled on the spot, even in prelab. We encourage you to avoid complex or complicated discussions about individual student papers in prelab or possibly even in the hearing of others in the lab. A second approach is to ask the student to speak with you privately at a quiet moment during lab or after lab or during office hours. A third option is to establish a policy that review of grading will be done if students resubmit their papers with a written note indicating where they feel re-evaluation is desired and why it is desired.

Student questions and concerns should always be honored so please always be open to review. Handling these questions systematically can avoid confrontation or spontaneous, rushed judgment on the spot.

**Carbonless Copy Notebooks-** CHE 112,115 students are required to purchase and use a laboratory notebook. It is expected that you or your assistant will initial the experimental work completed each session and collect and grade these copies each week along with the lab reports.

**Quizzes-** Students should come to lab prepared- having read the lab experiment, having thought about the concepts, and having done any prelab problems. Quizzes encourage their preparation. Students should also have learned something from their previous week's experience and that should be tested. Make the quizzes basic, just to check if they have read the experiment and don't expect them to be experts at the topic. They are supposed to learn by doing the experiment. Time is valuable in the lab so quizzes should not require more than 15 minutes to complete. Each lab section should have a minimum of 2 quiz grades during a semester. Double sections give a common quiz in the classroom, with timing and preparation worked out between Section Instructors.

**Academic Integrity-** Review the guidelines of the UNCG Honor Policy. (<https://osrr.uncg.edu/academic-integrity/allegation-process/>) Mention it in the first class and review frequently. Students are expected to do their own lab work unless the instructor indicates otherwise. Reports are to be written individually unless noted otherwise by the instructor. Students are encouraged to talk to each other, to discuss the techniques and chemistry involved in each experiment. However, when they sit down to write the report, IT NEEDS TO BE IN THEIR OWN WORDS. Incidents of identical answers have arisen frequently, so *emphasize right from the beginning that this is inappropriate*. Part of your job is to be alert for incidences of cheating or inappropriate academic work.

**Equipment-** Students are assigned a work station in the lab with drawers of common equipment (glassware, hardware, computer technology) and special equipment is also placed on the side shelves for each experiment. *Students are responsible for the equipment in their drawer and common equipment which they use*. At the end of the semester they may be charged for loss or breakage (Tell them that they will be charged. In actuality, they will only be charged if the loss is significant.)

**Water-** Deionized water is available at common wall sinks in the lab.

### **Odds and Ends**

**Office-** Assistants will be provided a desk in Room 431 NIB. A computer and printer are available for your use only. The photocopier in Room 431 is available for you to photocopy teaching materials or research materials for your research project.

**Lab Manual-** This will be provided for you.

**Keys-** Your UNCG ID card will provide access to the NIB and Sullivan buildings through the main lobby entrance. You should receive a NIB chemistry common key for labs, the TA office (431 NIB) as well as the Break Room (426 NIB) and the Meeting Room (428 NIB). A \$25 cash deposit will be assessed before you will be given keys for the Sullivan Building. Key applications are made with Andrew Hollady (Room 447). You will have to pick up your keys at the Sink Building, Physical Plant at the corner of Highland and Oakland. If you are in a research program where access to other rooms is needed, your research director will help you get that access.

### **Support**

We are here to support your role as a graduate and/or teaching assistant and strive to make it an enjoyable experience for you and your students.

If there are ever any questions or concerns please do not hesitate to contact us at the information below.

Welcome again to the Department of Chemistry and Biochemistry at The University of North Carolina at Greensboro.

## Important Contacts

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