# Information for Teaching/Graduate Assistants

## Department Faculty and Staff

The Department of Mathematical Sciences is housed in DuSable Hall (DU) and Watson Hall (WH). A list of names, offices, and office telephone numbers for all faculty and graduate assistants will be distributed within approximately two weeks. Here are some of the people you may need to contact in the meantime.

* **Prof. Jeff Thunder** (WH 320), the Department Chair
* **Prof. John Wolfskill** (WH 320), the Assistant Chairman of the Department
* **Constance Spohn** (Office Administrator)
815-753-6780
* **Carolyn Atkins** (Graduate Director [Prof. Deng’s] Secretary)
815-753-0566
* **Prof. Sien Deng** (WH 367)
815-753-6765
gradprog@niu.edu
Prof. Deng is the Director of Graduate. He will be in continual interaction with you in terms of your graduate study and your assistantship responsibilities. Feel free to call upon him to discuss any aspect of your role as a graduate student and as a GTA. He is in a position to help you with many problems but can only do that if he knows what the problems are.
* **Prof. Anders Linner** (WH 326) directs the Applications Involvement Component of the Ph.D. program. All Ph.D. students should register for two hours of MATH 792 until they have completed their AIC requirement. Ph.D. students should contact Prof. Bellout at least one year before the desired time of their AIC placement.
* **Prof. Qingkai Kong** (WH 338) is the Director of Undergraduate Studies. All courses in which you will be assisting fall under his jurisdiction.
* **Prof. Duchwan Ryu** (DU 361E) is the director of the Division of Statistics within the Department of Mathematical Sciences.
* **Renee Olsen** (WH 352) is the Coordinator of Teacher Certification. Students seeking certification to teach mathematics in grades 6-12 should consult Ms. Olsen early on for advice on their program of study and their eventual placement as a student teacher.

## Offices and Office Procedures

The main departmental office is Watson 320. The offices of the department chair, the assistant chair, and the office staff are located here. The main office is normally open from 8:00-4:30, Monday-Friday. The phone number for the main office is 753-0566.

Go to the main math office to:

* Pick up desk and office keys (from Carolyn).
* Pick up a grade book and the course textbook you will need for your GTA assignment.
* Leave something in a faculty member's mailbox (give to a secretary).
* Submit and collect duplication jobs (see below).

The graduate student mailboxes are located near the main office, adjacent to Watson 324. Check your mailbox frequently (once a day, if possible) for messages. This is especially important during the two weeks around the start of the semester, when changes to your TA assignment may be necessary on very short notice.

### GTA Offices

Each graduate teaching assistant will have a desk in DuSable 374 (phone: 815-753-1723), DuSable 370 (phone 815-753-1146) or DuSable 352 (phone: 815-753-6774). Obtain your desk assignment and keys from Julianne in Watson 320. Please inform Prof. Thunder if any complications arise in connection with your desk assignment.

It is essential that the GTA offices be **locked when no TA is present**. Remember that the other TAs are counting on you to maintain the security of their possessions in the room.

Use your office to prepare your teaching materials and to study, but please do not schedule your office hours in a GTA office. Instead, use DuSable 326 to have scheduled meetings with your students.

### Graduate Student Computing Lab, DuSable 344

This room contains computing resources for the use of the graduate students, including workstations, terminals, printers, and a PC. Your office key opens the door. The door to this room should remain closed and locked, even when someone is inside.

### Departmental Reading Room, Watson 322A

The Reading Room contains recent issues of mathematical journals. It is intended as a resource for research by faculty and advanced graduate students. Hours: 8 - 4:30 p.m.

### Paychecks

The university requires the direct deposit of paychecks; there is a form in your orientation folder. If there has been any break in employment, it is necessary to fill out a new form. You will be paid on the 15th and the last day of the month (unless such day falls on a weekend or holiday). You will receive your first paycheck at the end of August.

### Duplicating

The department provides resources for duplication jobs that GTAs need in connection with their teaching responsibilities. For duplicating items for your personal use, including items relating to your role as a student, please purchase a copy card at Founder's library. This card can be used with most of the photocopying machines on campus.

There is a duplicating machine in the hallway near WH 320 (Math Office) that GTAs may use to duplicate quizzes and other small jobs. Please do not use this machine until you have received instructions on its proper use. Short training sessions will be held during orientation. If a problem arises while you are using the duplicating machine, immediately inform the math department office staff in WH 320.

You may also submit duplication jobs (quizzes and handouts) to the main office. Attach a blue duplication request form to your job and leave your duplication job in the box on the counter on the main math office. These jobs should be submitted at least **two working days in advance** of when they are needed. Pick up your duplication job at the main math office when it is ready. If you are teaching a class with full responsibility, you may submit exams for duplicating. Exams should be submitted **four days in advance** of when they are needed.

Keep in mind that the office performs duplication jobs for the whole department, and that some times during the semester are particularly busy. It's therefore best to submit duplication jobs as early as you can, particularly during times that examinations are being given in several other undergraduate classes.

## Assistantships

### Report dates

Unless specific arrangements have been made with the director of graduate studies in advance and in writing, graduate teaching assistants are required to be present at 9 a.m. the morning of fall TA orientation before fall semester classes start in August, and at 9 a.m. the Friday before spring semester classes start in January.

### The work week

The Department of Mathematical Sciences expects that each graduate assistant will be available for 20 hours per week to fulfill their assignment. With the permission of the department and the Graduate School, non-international graduate assistants may accept up to 6 hours of work each week with another office on campus.

### Tutoring

Graduate assistants may offer their services as tutors to other students. However, it is not acceptable to tutor for a fee in the same course that you are assisting.

### Limitation of Time for Assistantships

Normally, the Department of Mathematical Sciences will not provide teaching assistantship support for doctoral students who have been enrolled in the department's graduate program for more than seven years (starting with a bachelor's degree), or for more than six years (starting with a master's degree). The department generally will provide up to two years of assistantship support for students pursuing a master's degree.

Graduate assistants who are simultaneously pursuing the M.S. degree in mathematics and certification to teach mathematics in grades 6-12 will be considered, on a case-by-case basis, for a fifth semester of assistantship support. This reflects the reality that the M.S. degree with certification usually requires three full years of study, with the final semester set aside primarily for student teaching (and not to be supported by an assistantship).

### Tuition Waivers

Teaching assistants all receive tuition waivers for the academic terms of their appointments. In addition, students who serve as teaching assistants during a spring semester are entitled to a tuition waiver for the following summer term, even those who do not hold an assistantship during that summer.

### Medical Insurance

The university offers medical insurance to graduate students and their families in case they do not have other coverage. Please consult the Student Health Insurance office at 815-753-0122 for information about how to obtain this insurance.

### Discounts on Book Purchases

The Student Center Bookstore offers a 10% discount on textbook purchases by graduate assistants. To take advantage of this opportunity, purchase your books at the service desk on the lower level of the bookstore. You will need to bring either your appointment letter as a graduate assistant or a Student Center charge card which indicates that you are a graduate student.

### Teaching with Full Responsibility

Qualified TAs may be asked to teach their own section of a course with full responsibility. There are a limited number of full responsibility assignments available. There are usually fewer such assignments than there are qualified TAs to fill them. Consequently, teaching assignments will be rotated among qualified TAs enrolled in the Ph.D. program in an attempt to guarantee that those qualified to teach with full responsibility have the opportunity to do so for at least three and at most six semesters. Doctoral students who hold fellowships and wish to teach with full responsibility are included in this policy, provided that they are qualified and that the terms of their fellowship allow this.

Under this policy, many doctoral students completing their program in five years will fulfill their assistantship responsibilities in one of the following ways: (a) two years as a teaching assistant plus three years teaching with full responsibility; or (b) three years as a teaching assistant plus two years teaching with full responsibility. There will, of course, be individual exceptions to these guidelines.

### Teaching Awards

The department presents Certificates of Teaching Excellence to advanced doctoral students who have demonstrated sustained teaching excellence and a strong record of academic achievement in the graduate program. In order to be considered for this award, a student must have successfully completed the written Ph.D. Qualifying Examination and served as a graduate teaching assistant for at least four fall or spring semesters, including at least two semesters of teaching with full responsibility. The awards are conferred at the departmental commencement ceremony in the spring.

### Academic Concerns

All GTAs must be full-time students (carrying nine hours of courses each semester) in good academic standing. A graduate student whose cumulative GPA in graduate courses falls below 3.00 will be placed on academic probation. At the end of each subsequent term of enrollment, the cumulative graduate GPA is re-computed and if it rises to 3.00 or above, then the probation is removed. This must be achieved by the time 9 additional hours of graduate courses have been taken or within three terms of enrollment, otherwise the student is subject to academic dismissal.

If a graduate assistant with a contract for an academic year is placed on academic probation after the fall semester, then they may appeal to retain their assistantship for the spring semester. However, no new contract for an assistantship will be initiated by the Graduate School until the probation has been removed. This provision is also subject to appeal, so you should consult with Prof. Deng as soon as possible if you are placed on academic probation.

Master's students may use the non-penalty repeat option to remove themselves from academic probation. Under this option, a course in which a master's student has received grade lower than B may be re-taken, and if a higher grade is received on the second try, then the cumulative GPA is re-computed using the higher grade. This option requires prior notification of the Graduate School (i.e., before the course is re-taken), so let Prof. Deng know before the beginning of the term if you wish to exercise this option. The non-penalty repeat option may be applied to at most six semester hours, that is, it can be applied to at most two three-hour courses. The non-penalty repeat option is not available to doctoral students.

## Guidelines for Teaching Assistants

### The Role of the Teaching Assistant in the Undergraduate Program

Many freshman-sophomore mathematics courses at NIU are taught using the lecture/recitation method. A faculty member gives lectures to a class of 100-300 students three times each week. The class is divided into smaller recitation sections (about 30 students each) for which the teaching assistant is responsible.

During the recitations, questions are taken and answered, detailed solutions to problems are presented, homework may be collected, quizzes administered, and homework and quizzes returned to the students. As a teaching assistant you play a vital role in this program since you are in a position to address the needs of each student individually. Moreover, since you are both a student and a teacher you can bring a perspective to your teaching role and an appreciation of the students' difficulties that many professors cannot.

A teaching assistant could be a grader, a tutor, a recitation instructor or an instructor with full responsibility. In most cases your duties will require 20 hours per week. You will attend the class lectures given by your faculty supervisor (three hours per week) and will conduct scheduled recitation sections (three or four hours per week). The remainder of your time is split between office hours, preparation, writing quizzes and grading papers. The time distribution depends on the course and will be explained by the course coordinator.

Your attendance at lectures serves two purposes. First, you are able to follow the methods and point of view of your faculty supervisor. This allows recitation sections to run more smoothly and greatly increases the amount of material that can be covered. It also avoids any confusion that would arise if you treated an issue differently than the lecturer.

Second, your ability to provide reliable feedback is enhanced by your attendance at lectures. If a student has a question on something the lecturer said, you will know to what the student is referring since you were also present at the lecture. It is your responsibility not only to assist the students with their difficulties, but also to point out to the lecturer if there is widespread misunderstanding of a problem or technique among the students. Since substantial feedback from the students is generally not possible in the large lectures, it is your responsibility to receive this feedback, organize it, and pass the information back to the lecturer.

If you are unable to perform one of your regularly scheduled duties due to illness or other unforeseeable reason, notify your faculty supervisor as early as possible. If you are unable to reach your supervisor, contact the assistant chair or the director of graduate studies.

Each TA will be evaluated by their faculty supervisor. Your performance as a student naturally is of primary importance; this is your reason for being here. Nevertheless, in questions of reappointment, your performance as a teacher does play a role. In fairness to our undergraduate students, we cannot reappoint TAs whose teaching is unsatisfactory. Moreover, TAs are always expected to carry out their duties reliably and responsibly.

### Consideration for the Student

Perhaps the most important thing to keep in mind is that most courses in which you assist will be largely populated by freshmen who have not yet adjusted to college life or to this university. They may be somewhat bewildered and intimidated by the academic life at NIU. The following suggestions can help to develop a positive relationship with your students through which effective learning can take place.

Knowing and using students' names helps establish a comfortable atmosphere in class and demonstrates an interest in your students as individuals. You can quickly learn names by making a seating chart (let them choose their own seats if you like) and then memorizing names from it. Returning quizzes and/or homework to your students individually also helps to quickly learn their names. Another helpful device is taking attendance several times early in the semester. When a student complains of difficulty in the class, a record of attendance at the recitations can provide a useful gauge of the student's attitude and sincerity.

Clearly state your name and office hours. In order to convince students that you are willing to help, it is necessary to repeatedly invite them to make use of your office hours; many TAs announce their office hours at the beginning of each recitation session. Also make it clear that you are available by appointment if your hours are inconvenient for the students.

Early in the semester, identify people who do poorly on quizzes or indicate lack of preparation. Ask them to talk with you and try to discover the difficulty. Sometimes a little encouragement or a suggestion for studying will help immensely. Also, compliment students for good work.

Questions are never stupid; no one intentionally asks a ridiculous question. Questions can indicate a lack of understanding (at times an incredible lack of understanding), but the successful teacher develops the ability to use a student's question to isolate their underlying difficulty. It is acceptable to delay a question and speak to the student after class, especially when the question appears to be too superficial or too time-consuming. However, never criticize a student in front of the class or you will have alienated a non-negligible portion of the class for the rest of the semester.

Don't be embarrassed about mistakes you make. Admit the mistake, correct the mistake and continue. If a student catches the mistake, make the correction and thank them. Try to maintain an attitude of working together instead of trying to find mistakes in each other's work. If you can't answer a question, admit it and promise to answer the question at the next session. Don't waste class time. Be sincere. Be honest in your interactions with your students and supportive of their efforts, regardless of their proficiency in the class.

Some useful phrases:

* No question is stupid.
* If you have a question, others probably have the same question.
* It is always better to ask a question and learn the answer than to not ask and possibly never know.
* Recitation is your time; this is why we are here.
* I don't mind explaining again. It is important and worth spending time on.
* If this were easy, you wouldn't have to take a class on it, you would just read a book.

### Techniques for Conducting Recitation Sections

Follow the lead of your faculty supervisor. Try to present the material from the same point of view. Solve problems or present material using techniques familiar to your students. You may occasionally introduce alternative methods so long as you are sure they don't undermine the purpose of the lecture. Never present material or make comments that appear to be a criticism of your faculty supervisor or your supervisor's techniques. This confuses the students and undermines the morale of the class. If you need further convincing on this point, consider what effect such criticism would have when your faculty supervisor learns of it.

Begin each class by spending several minutes reminding students what has been covered in lecture and how this relates to previous work. Solid contact with new concepts grows out of an association with older and more familiar material.

A large amount of material must be covered, particularly in those courses for which a student has only one recitation per week. The content of the three previous lectures should be covered.

You will develop your own techniques for handling this challenge. One possibility is to choose several (three or four) of the most important problems from each assignment to receive first priority in the recitation session. You could have solutions and complete explanations for these problems prepared in advance. Instead of asking generally "Are there any questions?", ask for questions on each of these problems individually. After covering these key problems for the entire week, the discussion could then be opened to other questions. The key problems could be chosen by the instructor, the TA or the two working together. In order to focus attention on these problems, they might be announced to the students in advance.

Be well prepared beginning with the first class period. If you're unprepared, you'll look like you don't know what you're doing, and you'll lose important credibility with your students. You're also wasting your students' time.

The ability to gradually "beat a problem to death" without previous preparation is not good teaching (nor are the students seeing a "keen mathematical mind at work," as the standard excuse for lack of preparation goes). By knowing in advance how a problem is worked, you will naturally point out the key to the solution, rather than leaving the students to hunt for it in a jumbled mess containing the solution as a (proper) subset.

Prepare for each recitation by working out at least one problem of each type before class. Some time should also be spent in second guessing; try to determine before class what questions will be asked. (This is easy with a little practice.) If you prepare questions about the material before your recitation, you can encourage student participation.

Encourage participation. One method, without taking the time to have students go to the board, is to ask them for suggestions on how to proceed and then do the work yourself at the board. This allows the student to do some work, but you can save time by correcting errors immediately.

If you can establish a helpful attitude from the beginning, participation should follow. If all else fails, have students do two problems (easy and moderate) to be handed in, graded, and returned. But remember that recitation sessions are help sessions, not punishment.

You will spend most of the recitation time working problems. Begin by writing the problem number, its page in the text, and (except in the case of lengthy word problems) the full statement of the problem. Make the notes self-contained. For example, when assigning letters to quantities in application problems write out clearly what each letter means. A more complicated problem can be broken into a sequence of steps; begin each step by a written statement of what you are trying to accomplish.

It is important not to spend an entire class on just a few problems, unless they are really important and illustrate all the techniques of the past week's lecture. If a question does not appear to be of general interest or promises to take too much time, ask the student to stop by after class. If you get stuck on a problem you may postpone it until the next class, but do not forget about it in the meantime. Be sure you can solve it the next time around.

It is also permissible to omit routine computation but be sure that it truly is routine computation and clearly indicate where you are making omissions.

Time is frequently saved by "setting a problem up" and leaving the rest to the students. This should never be done on key problems. It is permissible if a similar problem has already been solved in the same period.

Duplicated solutions to quizzes might help save time. Hand out the solutions first, then the students can look at them while you pass back the quizzes. Note that this is not a good technique to use on the key problem described above. Students gain something from actually seeing the problem worked.

Vary the type of students you call on. Continually calling on good students discourages the rest, while continually calling on poor students bores the good and gives the average a false sense of security.

Recitations are extensions of the lecture, not merely problem sessions. When appropriate, or in difficult sections, devote some time to a summary of the material covered in the lecture. Outline the most important techniques and results. If a lack of understanding of a basic concept becomes evident, several minutes reviewing essential theory is well spent.

### Chalkboard/Whiteboard Techniques

Most students' notes are an exact copy of what you write on the chalkboard. When you do a problem at the board, students not only see the solution, but how to organize a solution. Effective board work provides a model for writing and doing mathematics problems. The following tips should help you structure your board work.

**Begin with a clean board**. There should be chalk or markers and an eraser in the classroom. Chalk and markers are also available in the math office.

For classrooms having a whiteboard, always use a dry erase marker and never some other type of pen.

**Write legibly**. Students in the back rows may have trouble reading words in small or light handwriting. Students sitting behind the first two rows may not be able to see the bottom of the board. Keep the desk at the front of the room free of any objects that may obscure the board.

**Fill one panel at a time, always starting at the top and moving down**. Underline, circle, or use different colored chalk or markers for emphasis. Label as necessary.

**Avoid blocking the board**. Once you have finished writing, stand to one side while you discuss what you have written. If you are right-handed, you could begin at the rightmost front panel and proceed leftward.

**Give students time to copy what you have written**. If you ask a question, let them finish writing before you expect an answer. If you add to a graph, allow time for the students to draw a new graph; you can alter faster than they can reproduce.

Do not erase and modify, especially if students are still copying. For instance, if you find a mistake, don't go back over the last three panels madly erasing minus signs! Erase only when you have run out of space to write. Then erase only oldest or least important work and erase the entire panel to avoid implying a connection between the new work and any non-erased work.

**Talk to your students, not the chalkboard**.

**As a courtesy to the next instructor, erase the board**.

### Writing Quizzes

Some faculty supervisors will give regular quizzes during their large lectures while others will prefer to use the recitation sessions. In either case, you will probably be involved in writing these quizzes. Writing good questions requires practice.

Quizzes should be used primarily as a teaching mechanism; evaluation is a secondary purpose. When writing a question, write out a detailed solution. This will help you avoid giving questions which are mechanically more complicated than you desire and will also give you an idea of how long it will take students to write a solution once they know how to proceed.

### Proctoring Duties for Mass Examinations

It is mandatory for GTAs to remain available during finals week to proctor several mass final examinations. A GTA's proctoring assignment will be given no later than one week before finals week. It is a good idea to check that these do not conflict with your own final exams.

*Updated 8/11/2021*