

Nano Bio Lab, UT-Arlington, www.uta.edu/nbl
Graduate/Undergraduate Student Guidelines and Policies

General Guidelines:

- Research projects are important.
- The University of Texas at Arlington (UT-Arlington), Nano-Bio Lab (NBL) and Funding agencies/sponsors are relying on you to make real progress.
- Take your research seriously and think about your research.
- Strive to have original research ideas, as crazy as these may be!
- Read relevant journal papers and keep current with the literature.
- Be on time to all meetings, whether with your colleagues or with your mentors.
- Be available during most normal working hours for work and discussions.
- Leave a post-it note on your desk during normal working hours about your whereabouts.
- Send me updates of all milestones, big or small. If there is no update in 2—3 days it would be an assumption that you are not working on your research.
- Graduate Research Assistants/Associates (GRA), partially-funded Graduate Teaching Assistants/Associates (GTA) and UG Researchers (UGR) are paid to participate, lead and carry out research projects.
- GRAs, GTAs and UGRs are not paid to do coursework.
- The cost of tuition, STEM fellowship, in-state tuition, office-space, access to specialized equipment, access to facilities etc. are fringe benefits of the GRA, GTAs and UGR positions, to help you financially/professionally towards your research goals.
- The research activity can not be limited to hours. Research is not a job, rather than a means to help you finish your thesis/dissertation.
- The GRA, GTAs and UGR assignments are intended to carry out whatever task can help research programs of NBL, not necessarily only your thesis/dissertation. But of course, advising you towards your thesis/dissertation is the main focus.
- You maybe put on a research project that may not be your ultimate thesis or dissertation topic. New students gain experience by joining, supporting and helping with ongoing projects. It is expected that the experience gained with current projects will allow the students to make rapid progress toward a new innovative and new thesis/dissertation topic. Such thesis/dissertation project will be mutually defined and agreed by the student and Dr. Iqbal together. You maybe asked to consult with members of your thesis/doctoral committee as well.
- It is expected that the NBL GRAs, GTAs and UGRs will use their efforts toward accomplishing research goals, contributing to the engagement of new graduate/UG students, investigating new research areas, collaborating with external researchers, and improving the research infrastructure.

Meetings:

- All members of the lab (funded or un-funded) meet at least once a week as a group.
- Meeting time and location is decided for the whole semester catering for the schedule of NBL members.
- Some of the NBL students will be asked to meet Dr. Iqbal more than once in a week.
- Bring results, plans and ideas to the meeting.
- Come prepared and ready to do an in-depth discussion of your research, your mission, and progress. Bring conclusions about what was achieved and where do we want to go from there. Be ready to answer questions regarding the state of the art.

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- You are to keep detailed records of all research activities in an approved lab notebook.
- The lab notebook should have numbered pages.
- The lab notebook is the property of the lab and it has to be kept in safe custody. You may be asked to show this to Dr. Iqbal periodically.
- Lab notebook should contain detailed records including, but not limited to:
 - Data, data analysis, data plots
 - Figures, sketches, diagrams
 - Micrographs and pictures
 - Discussion notes
 - Copies of submitted manuscripts
- The lab notebook will be required to be deposited to the lab when you graduate. Put dates on every page or entry in the lab notebook.
- Reference sources when you make notes from literature in your lab notebook.
- You are required to send me at least one “Weekly Progress Report” every week. The report due day coincides with the weekly meeting day.
- The weekly progress report has to reach me by 9 AM on the meeting day.
- Everyone should have detailed information on what have been accomplished in previous week, what is the analysis of the results achieved so far and a plan as to what has to be done in the coming week. Highlight what important milestones of issues need to be discussed in the meeting.
- Include all the data from that week in the weekly progress report.

Lab Citizenry:

- Be a good citizen of NBL.
- You may be asked to act as “super-user” for an equipment, “manager” for supplies, “keeper” of monetary documents (quotes, invoices, etc.), or any other responsibility related to the smooth operation of the lab.
- You are to maintain financial integrity and official record for all the transactions that take place for your experiments.
- Help other students learn to use the lab equipment safely and properly for the benefit of everyone.
- Label your samples, containers, bottles, tubes, etc. appropriately. Every bottle, container, box, tube, etc should have the name of the owner, name of the contents (if applicable), and the date when the solution was made.
- Read Lab safety manual that is placed in the lab.
- Define, develop and follow standard operating procedure (SOP) for your experiments.
- Dispose off material in appropriate waste containers. Check with Environment Health and Safety staff at phone number (817) 272-2185 or email them at ehsafety@uta.edu if in doubt.
- Know what safety rules are.
- Know Material Safety Data Sheet (MSDS) of each chemical that is used in your experiments.
- Get an MSDS for each new chemical that you bring to the lab. File the MSDS in yellow binder at appropriate alphabetical location.
- Failure to know a rule is not an excuse to break a rule.
- Dispose off your materials yourself.

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The Big Questions: Once you become part of NBL, be clear or strive to have answers to the following big questions:

- What is the big picture of the project?
- Why is the project important?
- What is your part in the project?
- Why is your role in the project important?
- Who funds the project?
- What are the deadlines?
- What are the roles of others in the project, and how do they relate to your role?
- What do you expect to accomplish before graduating?
- What is your wish list? (The wish list can include “if there is time I will get this other thing done as well”)
- How much time do you have to accomplish your goals?
- What have you accomplished so far?
- Are you making progress toward publications? (Don't forget that peer-reviewed journal publications are the standard for progress.)

Elements of a Research Project: The following points can lead to high-impact research. Parentheses contain knowledge that must be acquired by the student in course of research.

- Suggestion of a problem to be solved or a question to be answered (general knowledge in some area)
- Elucidation of importance of the problem or question (mature insight into that area)
- Development of a novel idea to solve the problem (design techniques)
- Exposition on the history of the problem and previous solutions (deep knowledge of the literature in the area)
- Development of a theoretical framework for the solution and experimental exploration of the solution (theoretical techniques)
- New fabrication techniques developed (new equipment development, equipment maintenance, laboratory techniques, experimental techniques)
 - Measurements of fabrication results and solution results
 - Demonstration of the solution in working prototype
- Theoretical modeling and explanation of results achieved (modeling techniques and software)
- Dissemination of research results by journal papers and conference presentations (writing skills, presentation skills, organizational skills)
- Suggestion of unexplored research directions (independent thinking)
- Preparation of dissertation and final defense (organizational skills, writing skills, presentation skills)

Notes on Selection and Execution of Research Projects: Nearly all projects in the lab are based on a grant or contract. These grants require us to perform certain sets of investigations. There is generally some latitude in how the work is done. The GRAs, GTAs and UGRs are advised, given directions and provided training to use the tools to carry out the work. However, it would be a disservice to the student, if the advisor provides every detail on how the project has to be carried out. The advisor's job is to advice and not to device nitty-gritty of the project. The student has to follow the advice in finding the solution to the particular problem at hand. The student has to become familiar with the tools, literature, state-of-the-art

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and existing capabilities in the lab to start defining detailed aspects of the project. This will then entail original contribution to the field.

Trainings: Every GRA, GTAs and UGR is required to get the following trainings before working in NBL:

1. NanoFAB Safety & Protocol Training
2. Hands-on Chemical Training & Clean Room Access
3. HAZCOM Training
4. Any other training required by labs of collaborators

NanoFab website provides information for these trainings at:

<http://www.uta.edu/engineering/nano/user.php>

This document provides basics of Chemical Training:

http://www.uta.edu/ee/NanoBioLab/Docs/Chemical_Training_for_Nanofab_Rev-e.pdf

Consult with senior members of NBL regarding changes that has taken effect in the processes defined in the “Chemical Training for Nanofab” document.

Access to Equipment: NBL is member of a number of research facilities. NBL researchers can have access to other centers on-campus and off-campus as well. Take a look at the following links and ascertain your needs to use any equipment at these centers.

1. Characterization Center for Materials and Biology: <http://ccmb.uta.edu/>
2. Center for Nanostructured Materials: <http://www.uta.edu/cos/cnm/>
3. UTD Cleanroom Research Laboratory: <http://www.utdallas.edu/research/cleanroom/>
4. Genomics Core Facility: http://gcf.uta.edu/Core_Facility/Main.html

Holidays and Vacations: All NBL GRAs and UGRs are UT-Arlington employees. You have to follow UT-Arlington’s calendar for planning your vacations.

- Dr. Iqbal has to be given a notice via email regarding your intentions to take time off.
- As a courtesy, inform Dr. Iqbal if you plan on leaving DFW area during regular semester. There can be a deadline or an activity that may require your input/attention, even on weekends.
- The scheduled holidays are published for every fiscal year on UT-Arlington’s Office of Human Resources. These can be accessed for the current year at the link: <http://www.uta.edu/hr/leave-services/>

Signature_____

Print Name_____