Welcome to the Rogers Lab!

First, congratulations on getting into the PhD program at UNCC!! I am sure you are happy and proud. There is a lot of exciting research ahead of you. If you work hard and learn new skills, you should be able to finish your PhD with all the skills you need to do great things with genome sequencing data. The Rogers Lab works on the evolution of genome structure changes, duplications, and transposable elements. These mutations are really good at creating new genes where there weren't any genes before. We study how these genes interact with natural selection and how they may form the basis for evolutionary innovation. We study these mutations in lots of different animals. Your exact project will depend on your research interests, available data, and funding for new work. Hopefully you and Dr. Rogers can find a project both of you are interested in that will be the start of a thesis.

What is the goal of your PhD?

The goal of a PhD is to learn to answer questions and find new knowledge. You may need to learn about new tools or code along the way. You will likely need to use new technology or lab techniques. Ultimately, the goal is to find a question that is important but hasn't been solved yet. By the end of your time in the lab you should be the world's expert on your topic. You should look at your topic from every angle you can think of. Look up the genes in a database. Read the papers that have been written about what your genes do. Learn from other studies on a similar topic in similar animals. As you read, think about the questions you can ask about the topic and what type of data you would need to answer that question. Design the outline of an experiment or analysis that could help you answer that question. What input and outputs would that experiment have? How would the results look different when you use different data or different tools? When someone asks you questions about your organism or your mutations, you may not know the answer to all of them. You should be able to tell people what you know that might help them find the answers later. Your thesis is your own. It represents the body of work driven by your curiosity that defines your career.

What does a successful PhD look like? Publish or Perish. Preferably Publish.

In your PhD, research is the most important factor in career success. The more research papers you have, the more successful you are. Grants, awards, classes, and conferences may help you with your research. Ultimately, these have to be backed up with peer reviewed publications for the field to consider you successful. Your goal in your PhD is to produce at *minimum* 3 first-author papers. Your committee is unlikely to allow you to graduate otherwise. Some papers may be small, others may be big. Highly collaborative consortium work may be considered equivalent to first author work if you took the lead on a significant part of a very big multi-lab partnership. If in doubt, discuss it ahead of time with Dr. Rogers. You may want to find some minor author collaborations along the way. These should enhance, not detract from your first author work. They may help complete your CV, but they will not be considered by the field as the same kind of research success as your own individual work. At the end of your PhD your success in landing postdocs, fellowships, and even eventual faculty or industry jobs will depend on your first-author work. It is the most important thing that you will do.

What are the expectations for effort?
UNCC expects PhD students to average 40 hours per week on their PhD. Some of this time will be spent in classes. Some weeks there may be less to do than others. If you are waiting for code to run or for flies to grow, it is ok to take a break then. If the research is waiting for you to take action, putting in the hours is the only way to make progress on your PhD. Classes are important because they give you skills to do research. You should put in enough time to master the material. If a class is directly related to your research, you may want to put more effort there than if a class is not related to your work. Correctly setting your priorities so that you put in time where you will be rewarded is an important part of gradate and career success. You need to meet the requirements of all your commitments. Do not let these commitments detract from your research for first author publications. The person who yells loudest is not always pulling you towards the work that will pay off for your career.

Keep your focus in the places where it most needs to be. If you are spending less than an average of 20 hours on your research, talk with Dr. Rogers about how to best balance your commitments so you can focus on research. If you are not working as a TA and are not taking classes, you should average 40 hours on research. Some days may require more time. Some days may require less.

Your thesis publications are the most important thing for your own career. You should be working on your research whether Dr. Rogers is in town in her office, working on a grant outside her office, or off traveling to visit collaborators and conferences. A week with no progress at all will cost you a lot and lengthen the time it takes to get your PhD. If you run into a situation where you absolutely cannot put in research time for more than 1 week, talk to Dr. Rogers, Dr. Gibas, and Dr. Mays about how to petition for a leave of absence. If you are not averaging 40 hrs per week on research, classes, seminars, and journal club, you are not meeting the terms of your stipend.

Dr. Rogers can help with stats. She can help with molecular biology. She can help with coding or writing. Dr. Rogers cannot make you care. She cannot force you to run your code. She cannot send you back in time to spend your work hours more wisely. You are responsible for your own effort. The power to succeed or fail is in your own hands.

Communicating Science
Drafting manuscripts is the most important thing you will do during your career. It is the single metric of success in science. Not conference presentations, not internal reports to your committee, but publications. Never agree to do anything else if it detracts from your ability to publish.

It is likely that these manuscripts will require more than one round of revisions. It is a good idea to send Dr. Rogers early drafts or outlines of a manuscript even if unfinished or needing help with the language. Do not spend three weeks “perfecting” language in the first or second draft. There is a good chance that paragraph is going to be deleted or rearranged during revisions. Get

words on the page. Make the graphs, and ask for help often. Dr. Rogers will ask for updates or partial drafts as you write.

When you are writing:
-Start with figures
-Next do methods
-Get words on the page
-Edit your own writing
-Ask someone else to edit and rewrite
-Be prepared for multiple drafts

-Writing takes time
Be prepared to spend months on a manuscript, not hours or days. Questions will come up as you write the draft that need new analysis for answers.

Scientific manuscripts, unlike class reports, must be formatted in specific ways. The sections of a scientific paper and their headings are dictated by the journal (e.g. Discussion not Conclusions). Figures have to be processed at specific resolutions and formats for final publication so that copy editors will accept them. Figures should look professional with axes clearly labeled and any place-holder names replaced with final text. Remember that your audience has never seen this work before. They will need full explanations of everything you have done. You are not trying to show your committee that you have done the work. You are trying to share your work with the rest of the world so they can be excited about it. It may be a good idea to find a couple of scientific papers that you like so you can use them as a model. You can always schedule meetings to talk about how you are organizing the manuscript.

Writing your thesis
You have probably heard stories about how writing your thesis is the hardest part of your PhD. It shouldn't be. If you publish as you go, the thesis will just be a matter of stitching your papers together. You will probably need an introductory chapter with a review of the literature. This chapter should explain the place of your work in the field. You may want to turn this chapter into a review article, but it won't be the main point of the thesis. The chapters will be the publications you have produced in your thesis work.

You should aim for at least 3 first author papers. If your work is part of a consortium, you may not be first author but should be equivalent work to first author on smaller publications. Two of the three papers should already be published or under review before you leave. The third should be preprint ready. It may take time for the papers to work their way through the journals. That's ok. Just remember *your* career hinges on these works going out into the world. You have a vested interest in doing the necessary revisions to publish them even after you leave the lab.

When and how do I get help?
Lab meeting is every 2 weeks. You should be prepared with an update on the work you have done in this time. On the off weeks, you will have individual meetings with Dr. Rogers for more detailed help with your work. Both lab meeting and individual meetings are mandatory. Do not skip them unless you are ill or out of town. If you need to reschedule, email ahead of time. If you have run into problems with analysis, bring your questions with you. Be prepared to explain what you have tried and why it did not work. If you have searched for solutions online, explain what you have found so far. It is ok not to have solutions, so long as you have put in some effort to solve them. Setting code to run with solutions you have found in meetings right after the meeting can save you months or more over the course of your PhD. Likewise, submitting long-running code before bed so you can process it the next morning will help you make progress.

Running your code is the best way to find problems in your code. A lot of problems can be solved more easily with The Internet. Make at least some attempt to search for an answer on your own. Most code will offer error messages that you can search online. If you run into a serious problem, feel free to email or Slack Dr. Rogers with questions. A brief 5 min message session can do a lot to put you back on track. If your problem takes more time, we will schedule a meeting to fix it. Be prepared to take notes in your meetings. It is strongly recommended that you update Slack with your results as they happen. It creates an organized record of the progress on your project and makes it easier for you to keep Dr. Rogers on track with your work. Students who hide from their advisors when something is not working generally take longer and do poorer work than students who discuss the problem and get help. Sometimes research just does not work the way we expected. That is ok. We will either find a way to fix it or find other work that is worth doing. Know that this is normal and keep trying to find solutions if you can.

Helpful activities
Journal Club and Bioinformatics Seminar is mandatory unless you have a specific conflict. Hopefully the meeting time will be scheduled when you can come. You should come having read the paper (maybe you skim it every now and then). These seminars and discussions will help you learn about other research that is happening in the field. The best way to figure out how to do your research is to find a method that someone else has already gotten to work. It will also help you learn to think critically about research design. If the seminar speaker is in your field, you should make every attempt to go to lunch with them.

You may attend a few conferences during your graduate career. This is another way to figure out what other people are working on before they publish. Conferences are the best way for you to meet other researchers you might want to work for in the future. If Dr. Rogers is there, she will likely introduce you to people. Pretend you are not shy even if you are. This is your big chance to meet other folks working in the same field. Do not skip lunches, dinners, or happy hours with your colleagues. This is where collaborations are built. If you do not drink, go to the bar with them and order a soda. Have fun, but remember that these are professional contacts. Bring a notebook to the conference so you can remember what was said at the talks. You will also find it

helpful to write down your own thoughts or ideas about the talks. Enjoy meeting your colleagues and hearing about their work.

Time away from the lab

If you are registered for classes you are expected to be present on the dates class is in session. Your professors may not be able to work around your absences if you are gone during required class time without an appropriate excuse. If you have a known reason to be absent, you should let them know with as much advanced notice as possible. This includes absences related to conference travel.

Vacations more than 3 days should be cleared with your advisor before you make travel decisions. You are expected to be at UNCC when the university is officially open. This includes summer terms as well as normal working hours when classes are not in session. You may choose to take time to travel before or after conferences. Discuss these plans with Dr. Rogers before making travel arrangements and make a plan for any research obligations (especially care for living organisms) to be met while you are away. If you have a personal or family emergency email as soon as you are able. Let Dr. Rogers know how long you will be away and whether any work needs to be handled by other lab members.

Interactions with lab members

Your fellow lab members are your colleagues. You are expected to treat them with respect. You may be asked to help them with their work if they need to try a skill you already know well. If you are, hopefully you can help train them. This will improve your knowledge, communication, and CV if you are helpful to others. When we all work together as a team, our colleagues' success reflects well on all of us. If other students succeed, you will look better and have more opportunities because of your association with them. Bullying is not tolerated in The Rogers La. Remember that gossip will travel. People are aware of each other's reputations and will choose to work with the most helpful colleagues.

If you have an ongoing conflict that is affecting your ability to do your work, discuss it with Dr. Rogers, Dr. Gibas, the University counseling center, the University Ombudsman, The Office of Research Integrity, or the Title IX office. The Ombudsman, Office of Research Integrity, and Title IX office only handle serious violations of university policy. They may be very helpful if you encounter bad actors. We hope you never need to use them.

Academic Integrity

You are expected to uphold research integrity, policies preventing harassment and discrimination, and professional behavior toward your colleagues. The Ombudsman, Office of Research Integrity, and Title IX office handle violations. Any relevant complaints against you in your research will be referred to these offices. Violations of Academic Integrity in classes will be handled by the Academic Integrity Board. Violations of academic integrity include but are not limited to: plagiarism, copying of assignments or research materials without proper citations, fabricating or falsifying data, failing to obtain IRB or IACUC approval before beginning

experimentation, violation of privacy or HIPAA for human research subjects, and non-compliance with state and federal laws for biological materials.

Be aware that the Office of Research Integrity or Academic Integrity board could take action against you and remove you from the graduate program. They could also investigate and take action against Dr. Rogers and other lab members if you commit violations on collaborative projects in the lab. This decision is made independently from the decision that is made with your committee. They have the potential to impact other people's lives as well as your own.

Violations of Research Integrity

If you are found to be in violation of academic integrity policies you will be asked to leave the Rogers Lab as you pose a risk to the reputation, careers, and well being of other lab members including Dr. Rogers. If you are allowed to remain in the Rogers Lab on probationary status you will be asked to read and summarize The Great Betrayal by Horace Freeland Judson. You may also be asked to meet with your graduate committee to put a doctoral improvement plan in place. If you do not yet have a committee you will be asked to meet with Dr. Rogers and the graduate director (currently Dr. Gibas) to discuss your status in the program and academic standing.

If you leave the graduate program because it does not fit your goals or because you struggle with code, biology, and statistics it is likely that you can have a future in a different kind of graduate program, in industry, or working in a different lab. If you leave because of academic integrity violations you will not receive a fully positive reference, and it is unlikely that anyone in the field of biology will want you involved in their research. You are better off taking a zero on an assignment than committing academic integrity violations.

I, _____, have read this document and am enthusiastic about working in the Rogers lab.

Signed:

Dated: