



STATEMENT OF OBJECTIVES & EXPECTATIONS OF THE NEUMAN-LEE LABORATORY

INTRODUCTION

Welcome to Arkansas State University and to my laboratory in the Department of Biological Sciences. If you are considering attending AState, then this information will give you an idea of what to expect from me and from yourself. If you have already been accepted into the department's graduate program, then I expect you have already learned much about what appears below. I hope that your tenure here will be rewarding and enjoyable.

OBJECTIVES OF THE LABORATORY

The objectives of the Neuman-Lee lab are to: (1) train graduates who will be successful in their chosen careers; (2) conduct valuable research in an ethical manner; (3) produce high quality theses/dissertations with the goal of publishing in peer-reviewed journals; and, (3) promote conservation of ecosystems and their components through providing information, expertise, and leadership.

WHAT I EXPECT FROM MY STUDENTS

Goals – The goal of a graduate degree is to learn to conduct research and disseminate findings. Your goal should be to produce an original thesis of publishable quality in a reasonable time period (2-3 years for Master's and 5-6 years for a PhD). Furthermore, your goal is to produce from that thesis, quality publications in peer-reviewed journals.

Learning/training/grades – A major aspect of your training here will be in your classes. Additionally, you will learn a lot through interactions with fellow graduate students in this and other labs, other professors at AState, colleagues at professional meetings, and me. Should you be employed as a teaching assistant (TA), you will gain experience in teaching. Finally, you will gain experience in leadership skills. Your courses will be selected so as to facilitate a better thesis and to better prepare you for your career.

Concerning grades, you must maintain at least a 3.0 GPA to keep any type of assistantship appointment. For this reason, I prefer that my students initiate their program in good academic standing, so I do not assign students many additional tasks during their first semester. By the same token, I expect my students to maintain their GPA, but I do not want courses to consume all of their time. Coursework should not be the most important part of graduate school. The objective is learning, not necessarily maintaining a "perfect" 4.0.

Time – I do not require any set hours or amount of time spent at school. This is not a factory, and we do not have a time clock. If you are productive at home or elsewhere, then that can be satisfactory. I only require all students to be present at weekly lab meetings and at an individual one-on-one meeting with me. However, there are certain things that can only be accomplished at school. For example, it is difficult to gain the advantage of interaction with fellow students (and me), and to cooperate on achieving goals if you are not here. I do expect

to be able to reach you if I should need to do so urgently – it is your responsibility to inform me of any extended absences from campus or changes in your contact information.

Aligned with this topic is that of departmental participation. Many people are involved in scheduling various seminar events where biologists from AState and other institutions present their research to our department. In addition to learning about investigations in other areas of biology, these talks may feature state or federal employees whose agencies could present future employment opportunities for you. As such, I trust that you will make every effort to attend these periodic events. Along similar lines, I expect that you will make every effort to attend these defense seminars of your peers in the graduate program, regardless of their research focus – they will appreciate, and reciprocate, your support.

Cooperation – You are not in competition with your fellow graduate students, even if they are from another lab. When I, or somebody from my lab, receive recognition through a publication, grant, award, job, or similar circumstance, it reflects well on all of us. This philosophy also transcends to the department, school, and university level. Therefore, cooperation and teamwork are going to be more productive than competition (although a little friendly competition is healthy at times). Everyone in the lab will at least become familiar with everyone else's project, and I will encourage students to collaborate and assist each other by any means possible.

Ethical behavior – With rare exception, the research conducted in my laboratory involves vertebrate species. Guidelines from the Institutional Animal Care & Use Committee (IACUC) stipulate that all vertebrates will be treated in an appropriate manner and, if housed in the laboratory, that they will be provided with a certain minimum level of care (NAS 1996; <https://www.astate.edu/a/ortt/research-compliance/compliance-committees/institutional-animal-care-use/>). My standards are generally more rigorous than those set forth by the IACUC. As such, I expect that you will treat all living forms with the respect that they deserve and will not neglect any of your research animals that are maintained in captivity.

Although keenly interested and supportive of any research endeavor you undertake, I have neither the time nor the energy to watch each of my students gather every last datum. In addition to an independent working environment, what this means is that I am trusting you to gather all of the necessary information to complete your thesis. Falsification of data is a surprisingly easy “trap” to fall into and yet also a relatively easy phenomenon to detect. My philosophy is, “Don't even *think* that you'll be able to get away with it.”

WHAT YOU CAN EXPECT FROM ME

Developing and conducting an innovative research project – As stated previously, the research project you conduct will be the cornerstone of your tenure here. You will be identified for some future time period by your thesis research and the publication(s) that result from it. You can expect to work on a project that is not only interesting, but exciting. You should become familiar with the types of research I do because your project may well be similar to a certain degree. A contention of my research philosophy is that you can make any project exciting and truly your own by dreaming it up yourself. Your creativity may have constraints as would be imposed by a grant with specific objectives, stipulated by the funding agency. Generally, your

project will be closely related to those objectives. You may not simply take a funded proposal that I have written and use any component of it as your project.

Assistantships – Unless there are unusual circumstances, I am reluctant to accept a student unless some financial support exists in the form of a research or teaching assistantship. A research assistantship (RA) entails doing research, usually related to the thesis, for a monthly stipend. Other duties may be assigned to you, however, that are not directly related to your project. A teaching assistantship entails assisting a professor(s) with a few sections of a course(s) having a laboratory component (not to exceed 20 hours of work) for a monthly stipend.

Because the thesis is still required, an RA is generally preferred by most graduate students. However, there are advantages to a TA: First, you gain teaching experience. Second, you often have more freedom in selecting your exact research project, because your study is not tied to a grant having contractual obligations to a funding agency. Also, be aware that you may not have a choice in the matter – the type of assistantship awarded may depend on available funding at the time in question.

The amount of time you allocate to TA duties during any given semester may depend on the courses that you are assigned. As mentioned previously, I do not maintain a log of your hours and neither should you. The "job" is goal oriented. That is, the number of hours is irrelevant; you put in the amount of time required to achieve the goal of producing a quality thesis whilst also satisfying the obligations of your assistantship contract.

Other financial and technical support – The Neuman-Lee lab and Department of Biological Sciences have equipment that is available for you to use. This includes field/sampling gear, aquaria and husbandry cages, boats, and other items. Additionally, you will have access to the following resources:

- a state-of-the-art ecotoxicological facility (<https://www.astate.edu/college/sciences-and-mathematics/ecotoxicology-research-facility/>),
- Arkansas Biosciences Institute (a core facility that provides equipment for proteomics, genomics, imaging, flow cytometry, and tissue culture (<http://www.astate.edu/a/abi/>),
- A histological lab
- An extensive natural history collection (<https://www.astate.edu/news/national-science-foundation-approves-5-48-million-in-grants-for-biodiversity-projects-led-by-a-state-researchers>)
- A huge variety of field locations that expand across ecological gradients

Graduate students in our department have ample access to computers and appropriate software. You should not feel reluctant when asking to borrow additional equipment from other labs.

There are numerous opportunities to obtain additional funding for your research. These include intramural (AState) grants and fellowships, as well as extramural competitive grants and other sources. I encourage all of my students to try their hand at writing grant proposals to obtain funds for their studies. This skill is often deemed essential by many employers &/or other graduate programs seeking recent Master's graduates or for post-doctoral positions.

Gaining experience and confidence – As you develop and conduct your research, you will gain experience and confidence in becoming knowledgeable about your particular topic. You can

expect to have opportunities to attend meetings, present your results there, and interact with other experts, potential employers, and colleagues. Therefore, you can expect the opportunity to learn and gain experience in your leadership skills, plus the opportunity/necessity to learn and cooperate with your peers in this regard. I view these as essential skills for professional biologists.

Moral support – Once you matriculate in my lab, you will have my support in just about any circumstance. You should not have to worry about failing or my losing confidence in you. The idea is to be comfortable in your surroundings, without fear of failing, so you can focus on doing the best possible job in your degree program.

Assistance in getting jobs or further educational opportunities – One of the metrics I use to judge the success of my laboratory is the success of my students in getting good jobs or further educational opportunities. You can expect me to provide any and all contacts and information sources I have to help you in this regard. You can also count on a favorable, but honest, referral to potential employers &/or mentors.

PRODUCTS OF THE LABORATORY

Publication and authorship rules. – Students often have questions about who is entitled to be an author on a publication. Usually, the question does not involve the first author so much as who will be added as co-authors. This question generates some of the most vigorous arguments in science; but, they can be avoided as long as everyone has an *a priori* familiarity with the basic guidelines. There are several principles I try to follow; but, they are not etched in stone and may vary according to the particular situation. Generally, there are nine components to research in my lab:

1. Concept/ Idea Generation
2. Providing Equipment and Technical Assistance
3. Designing the Experiment
4. Field Work
5. Animal Manipulations (not animal care)
6. Bench Work
7. Data Analysis
8. Mentoring
9. Writing of Manuscript

My lab policy is that anyone who contributes substantially to 2 or more of these 9 areas is entitled to be an author on the paper. However, authorship expectations and order should ALWAYS be clarified at the outset of the study.

Generally, I view a student's thesis topic as his or her own – the thesis will be authored by the student alone. Providing that I have met the above requirements, however, publications resulting from the thesis will likely have both the student (primary author) and myself (final) on the by-line, following conventions in biological publishing. This is typically the case because I almost always contribute substantially to many of the components. Although not always true, funding arrangements through my laboratory (support ranging from minor equipment purchases to year-round research assistantships) are often essential to a student successfully completing his or her degree. As such, in the rare event that my contributions to

the above-listed components of your thesis are relatively minor, I would hope to be listed as an author on most of the published data collected during your tenure in my laboratory.

Ownership of data – "Intellectual property rights" is another topic that can cause conflicts and should be easily avoided. Technically, if you are employed by AState as a graduate assistant or even a technician whilst you are collecting &/or analyzing your data, then those data belong to the University under my auspices. In truth, if your research is in any way funded by an extramural agency (*e.g.*, Arkansas Game and Fish., U.S. Forest Service, *etc.*), then the data really belong to that agency. However, the funding source typically identifies AState as the repository for the data. All of this notwithstanding, in these days of easily copied electronic data, both the graduate student and the professor retain a copy of the data collected by the student. As such, I expect that you will provide me with both original and electronic copies of all data that you collected during your time in the lab.

Following your graduation from the program, you will almost certainly be free to continue data analyses and publication. Indeed, I would hope that all graduate students share my enthusiasm to see their work in print. Occasionally, however, one's motivation to write up the data is over-shadowed by other commitments after his or her degree has been awarded. Because publication is essential to the scientific process, I will, if necessary, see the "product" to completion. Therefore, should I fail to receive from you within two years of your graduation date, a draft of a publishable manuscript representing a portion of your research, then I will assume that you are uninterested in publishing your work. I will then take it upon myself to publish your research, listing myself as the primary author and you as the secondary author. However, if I am unable to contact you with the draft before publication, I may be required to remove your name from any publication as stipulated by journal requirements (*e.g.* acknowledgement that all authors have approved the draft for publication). Because of this, please always ensure that I always have your current contact information.

REFERENCES

NAS (National Academy of Sciences). 1996. Guide for the Care and Use of Laboratory Animals. National Academy Press, Washington, DC.

Still have questions? Do not hesitate to refer to the Department of Biological Sciences at <http://www.astate.edu/biology/>, or my website at <http://neumanleelab.weebly.com>.

...or, contact me for additional information:

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