# Student Researcher Survey

Please reflect upon the following questions and answer them as accurately and as comprehensively as possible. You will discuss your reflections with Dr. Ferkinhoff and then we will create a research and professional development plan to guide and evaluate our progress. Feel free to type directly into this document. Please send this document to Dr. Ferkinhoff at the latest, the morning before we will discuss it. This will be helpful to make sure we are all on the same page as we collaborate on research together!

1. What are your expectations for your doing research with Dr. Ferkinhoff and the WSU Astrophysics Group? What excites you about this opportunity?

The last time I tried to do research, perhaps I had some unrealistic expectations on what I could accomplish. Perhaps maybe those expectations can be met without the distractions of school. I want to be able to apply the knowledge I have acquired to engage in synthesis of new information. I want to expand my knowledge to the point of where I can do engineering tasks of value. Things like creating new machines, novel circuits such as what was shown for the hack box, working with machining tools, expanding my math knowledge etc.

Being able to work with a professor who has done multidisciplinary work is a great opportunity to learn from an expert. I am hoping to be able to emulate such expertise in the future.

1. What are your current apprehensions about doing research and being a student researcher? What challenges do you expect to face?

During the school year, when it came to assignments, the direction I needed to take was easy to identify. Research does not have such a linear path. It is easy to get sidetracked by information that has no value.

Despite being in an engineering program and having graduated previously, there is still much I do not know. My lack of knowledge in certain areas could impede my progress. I am hoping to be able to progress at a faster rate than last time.

Also, time management for me is still a bit of a challenge. I try not to get distracted but sometimes I falter.

1. What specific strengths will you bring to being a student researcher?

I have previous experience in CAD, circuits, mathematics, chemistry, and engineering subjects like mechanics of materials, fluid mechanics etc. I have also been an engineer in the past so I understand the importance of sharing information and completing things on deadlines.

1. What science courses have you had WSU or other places? What research experiences have you had at WSU or other places?

Organic chemistry, university physics 1 and 2, electricity and magnetism, design of experiments, electrical circuits and systems, polymer chemistry, polymer science and characterization, principles of chemistry 1 and 2, characterization of polymers

I have had the chance to work briefly on the hakk box as well as some quantum computing literature research with a st cloud professor in an unofficial capacity (unfortunately this fell through as he was busy with getting this program off the ground, still learned a lot though).

I am also working on some topology optimization with a professor in CS department. Tough because I have to learn about calculus of variations and am unfamiliar with functionals.

1. I prefer to work in this part of the day (i.e., this is when I believe I am “at my peak”)…

9:30 – 5:30. I work better in the late morning and afternoon.

1. What I need most from a mentor, or in an ideal world, the ideal mentor/mentee relationship for me is… What has been your least positive experience with a mentor/supervisor?

Someone who will be able to help me transition from superficial to deep understanding of engineering, science and math and being able to apply this to complete engineering research projects

1. I prefer to communicate…In person? In writing? Email? Text? Facebook?

In person and email are both preferable.

1. I am sometimes misunderstood or commonly misperceived as…

Unfriendly, I am not very good at socializing so I may come off as aloof and uncaring.

1. When I feel stressed, what I need most from my colleagues is… from my research mentor is . . .

Perhaps some space and some direction. Sometimes when progress Is slow I can get frustrated. I try and direct that anger towards the problem and distance myself from others so I don’t snap at them when they are just trying to help.

1. What are your professional and/or academic goals for doing research?

I want to be able to go to graduate school and then work for one of the national labs as a scientist/engineer.

1. How do you propose to achieve your professional and/or academic goals? How will you know when you’ve attained a goal? What will success look like for you?

The goal is simple but the path towards it is fraught with challenge. The goal is to be an engineer/ scientist who can contribute to national defense and national scientific/engineering knowledge. I have been trying to learn through MOOCS and online resources about different topics in engineering and science. I know I will have attained that goal when I am able to perform my own complex engineering projects with minimal assistance. Success looks like being able to work at a lab like Los alamos or oak ridge in a multidisciplinary capacity

1. What are your personal goals?

I want to be able to call myself an engineer without any doubts or issues with imposter syndrome. Even though I was an engineer for 8 months and graduated with a degree, I still don’t feel like an engineer yet. I am not too happy about that.

I am trying to emulate the example of the people who have been doing research with the Astro group in the past where they could design circuits and models that were completely new with no precedent.

1. How do you propose to achieve your personal goals? How will you know when you’ve attained a goal?

I am going to look at the previous research conducted by the group members before me. I will also be trying to expand my knowledge in broader topics such as microcontrollers, programming and cs, solidworks, circuits, engineering with the books present in the labs and through working with the professors. Achieving the goal will come in the form of novel creations that combine the knowledge acquired previously

1. How much time each week do you feel comfortable committing to student research?

40 hours a week.

1. What times, Monday – Friday between 8 am and 5pm, are you available for at least 1 hour to work on research, or meet and discuss research?

9:30 – 5:30 is fine.

# RECEIVING FEEDBACK

## Part 1: QUESTIONNAIRE

Directions: Please review the following list of forms of recognition. Check the feedback methods that you value and would like to receive. You may check as many as you like, but only check the ones that apply to you.

1. \_\_\_\_\_ to receive positive verbal feedback at a research group meeting.
2. \_\_\_\_x\_ to be asked to take on a tough problem or a new challenge.
3. \_\_\_\_\_ to be asked to give a presentation on your work at a research group meeting.
4. \_\_\_\_\_ to receive positive, handwritten comments in the margin of a document you prepared.
5. \_\_\_\_\_ to be invited to grab a coffee with your research mentor.
6. \_\_\_\_x\_ to be given the opportunity to learn from research group members who have different responsibilities/projects than you.
7. \_\_\_\_\_ to attend a golf and tennis weekend at a beautiful resort with other research award winners.
8. \_\_\_\_x\_ to be given the opportunity to purchase new tools and equipment to enhance your research.
9. \_\_\_x\_\_ to have your picture and a story about your work appear in a community newsletter or paper.
10. \_\_\_x\_\_ to be asked for your opinion on a difficult research problem or a new opportunity.
11. \_\_\_\_\_ to be given the opportunity to speak about your work an external meeting.
12. \_\_\_\_x\_ to be offered the opportunity to learn a new system or operate some new equipment, or in other ways increase your skills and knowledge.
13. \_\_\_\_\_ to have your picture and research displayed in a prominent location, along with either letters of commendation or a description of your work, or both.
14. \_\_x\_\_\_ to be asked to help a colleague get started with a project or solve a particularly difficult problem.
15. \_\_\_\_\_ to receive verbal recognition for your work from another research group member during a meeting attended by you and your colleagues.
16. \_\_\_\_x\_ a solution that you recommended is being implemented throughout the research group.
17. \_\_\_\_\_ a community member sends a letter to your research mentor praising your work.
18. \_\_\_\_x\_ when you ask for help, your mentor offers to pick up some of the load directly, share their expertise, or obtain outside assistance.
19. \_\_\_\_\_ to be presented with a T -shirt, hat, or mug with your name or other indication on it that makes it clear that it is recognition for your work.
20. \_\_\_\_x\_ to be empowered to make decisions, or to be able to act in other ways that increase control over your work.

## Part 2: RECEIVING FEEDBACK SCORE SHEET

Directions: Please transfer your responses to the columns below by placing a check beside the same numbers you checked on the survey, and then tally the columns.

|  |  |
| --- | --- |
| Extrinsic Recognition | Intrinsic Recognition |
| 1.  3.  5.  7.  9.x  11.  13.  15.  17.  19. | 2.x  4.  6.x  8.x  10.x  12.x  14.x  16.x  18.x  20.x |
| **Total:1** | **Total:9** |

Discussion: After tallying up your points, see if you are extrinsically- or intrinsically-motivated. Share your results with Dr. Ferkinhoff. Focus specifically on what motivates and what un-motivates you. If possible, share some examples of recognition you have received in the past and how you reacted to it. This exercise will help you and Dr. Ferkinhoff communicate, as well as seek out additional professional development opportunities.

As a product engineer, I had the chance to use an Arduino to work with a pressure transducer to perform a water tightness test. This was my first application of my engineering education in a real world setting which I thought was really cool.

I got a chance to try using the NMR machine with help from another student. That was interesting as well. I like being able to try out new equipment.

Learning new things gives me purpose. This is a simple overview of my though process.

However, applying those new things to new problems is equally if not more important.