**Summer Research Project Development Worksheet**

**2021**

The goal of this exercise is to outline the specifics of your mentee’s research project.

At our Project Development Workshop we will plan to share and discuss these outlines.

Mentors have a lot of freedom in designing summer research projects, but there exists very little guidance on what makes a good project. By taking the time to fill out this worksheet, the hope is that your project will become more fleshed out, more readily adaptable to the needs of your mentee, more flexible as the research progresses, and better set up for success by the end of the summer.

Once the summer starts, consider sharing this outline (or its content) with your mentee. Often, students will describe the inevitable change in project direction/expectations with a feeling of failure. Having the expectation that things will change, and that you’re prepared for it, will hopefully provide the mentee with more realistic/healthy expectations.

Some things to keep in mind while filling this out:

* A good summer research project is one that you could probably do yourself in one week
* Between the quarantine period, program ramp up, the trip to McDonald Observatory, and prepping for the end of summer symposium, you realistically have 5-6 weeks where focused work can take place
* The average summer research project achieves next to nothing, with a long tail extending toward something like a refereed publication
  + This point is important for setting realistic expectations for the mentor and prioritizing the student experience over a specific research gain
* Ideally, each student will submit a RNAAS at the end of the summer, or shortly thereafter

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1. Describe your mentee’s project. What is the scientific motivation? What is the technical motivation? What are the specific science goals?   
   (If there are multiple “routes” your project could take, describe the science goals for each.)
2. For each route above, identify 3-4 “stopping points'' that the student could reach with a sense of accomplishment and be able to present their results as-is. For reference, a RNAAS can have one plot (or table); each stopping point should ideally have that plot in mind.  
   (These “off ramps” make your project flexible and easier to match to students of varying incoming skill levels. )
3. For each route above, describe the type of high-level skill(s) the student will be gaining/exercising through this project.  
   Some examples are:   
    Learn/improve coding skills  
    Analyze reduced data and draw conclusions  
    Search for undiscovered planets/galaxies/asteroids  
    Deep technical dive (e.g., PSF fitting)(If different routes involve different high-level skills, consider asking your student what skill(s) they’re most interested in learning/exploring/honing.)
4. Identify the skills and knowledge that are necessary for your project(s) and specify whether the student should (a) already have this skill/knowledge, (b) gain it on their own, or (c) learn through the research experience.

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| **Scientific / Mathematical Knowledge** | **Skills** | **a/b/c** |
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