**ASTRO 399 Report**

This semester, I was excited to work with Professor Meyer on a research project regarding the companion frequency of M-dwarfs. I had already done some work related to this project in past semesters, but this was my first time working in an official capacity. I believe that after a lot of hard work, I was able to learn a great deal about the subject matter.

Prior to beginning of this semester, there was a discussion as to whether it would be best for me to take 399 at this time. The main reason not to was that I should instead focus on my grades, particularly in physics. After some hesitation, I obviously decided to do go forward with research. In retrospect, I believe this was the correct decision. My current grade in Physics 340 seems to indicate I will finish in the B to A- range. I believe that I also produced meaningful and interesting results for this research.

From the beginning of the semester, the goals and expectations of this project were clearly laid out in a summarizing document. This was helpful to have, but I found that I often had trouble understanding the steps of the project until I was able to have personal meetings with Prof. Meyer. However, these meetings were almost always able to resolve issues at hand. As for weekly expectations, I found the average time I was expected to spend on the project weekly to be easy to meet. Most weeks, I spent 3-4 hours on the project as was expected. Two exceptions to this include: about two week around midterms when I did not spend any time on the project and the week before the poster session when I spent about ten hours working. This disparity was due mostly to my dedication to school work and partly to my understanding of the project.

My greatest struggle with this project was the conceptual understanding of the overall process. From the beginning, I was unsure about the overall meaning of the project and what I was doing. This led to my time being used inefficiently. However, week by week, I was beginning to understand more and more. Finally, by the week before the poster session, everything began to click. This is due in large part to an increase in the frequency of my meetings with Prof. Meyer. In the future, I would definitely attempt to schedule meetings on a weekly basis. I hesitated meeting this frequently this semester because I was afraid I would not be able to produce results this consistently, but I now realize that these meetings are key to ensuring the project progresses smoothly.

If I were to reflect on the results of this project, I think that I was able to achieve most of that which was laid out in the summarizing document sent to me in the beginning of the semester. As the final step of the layout states, I was able to extrapolate a total companion frequency of M-dwarfs over all ranges of separation and mass ratio. Because of this, I believe that this semester can be considered a success. There is still more work to be done, but I feel that I will be able to make this progress much more quickly now that I understand the project holistically. I plan to do this work, including adding data from microlensing and other surveys to my current code base, over the summer.