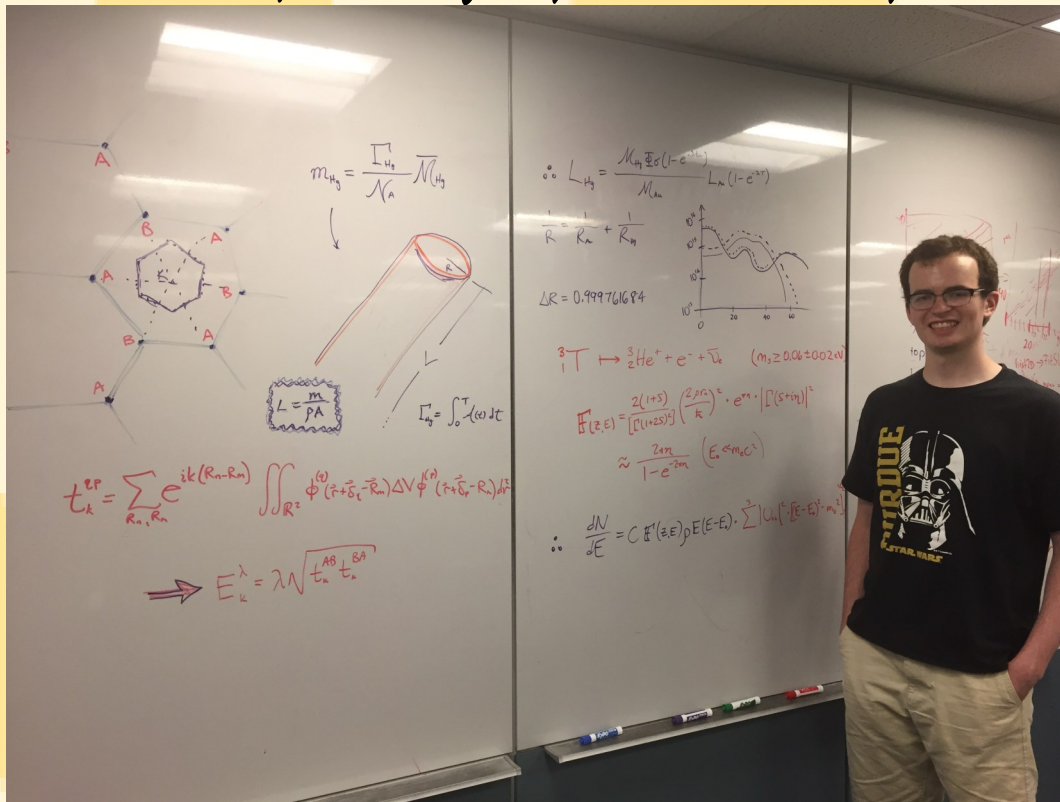# Summer 2017— Josh Leeman

Dr. Fischbach's Group

As a double major in physics honors and mathematics honors, my main passions in research mostly lie in theoretical high energy physics. Therefore, for the past year and a half, I have been collaborating with Professor Ephraim Fischbach to analyze some pressing concerns that are relevant in his work. For example, I was recently tasked to determine the experimental corrections one would have to consider when observing a heated gold wire placed within a beam of energetic neutrons. Another time he included me in his study of the absolute neutrino mass scale. During my free time I would progress through his inquires, which would usually take days (or even weeks) to complete.

For my final year as an undergraduate, though, Dr. Fischbach plans to welcome me in his hunt for the mysterious fifth force of nature. Based on the research he published in 1998, he theorizes the existence of a non-Newtonian gravitational force that is dependent on the number of nucleons in samples rather than the amounts of mass. Our research may even unveil some truths about dark matter since he believes it could also affect this fifth force. The thrills of working Professor Fischbach's projects are incomparable!