**Research Pre-Proposal**

*The purpose of this pre-proposal is to help guide you as to whether your idea for your research is do-able or not. There are many things that can cause roadblocks to good research. Some of them include*

1. *Projects that are too broad*
2. *Proposals that do not take safety into account (e.g., using carcinogens)*
3. *Projects that have already been done*
4. *Projects that are impractical from an equipment perspective*
5. *Projects that AOS faculty have already informed you are not feasible*

**Please fill return the entire form to your research teacher by Wednesday 5/13/2015. Bring a hard copy to class and submit onto turnitin.com by 9:45am.**

**Student name: \_Raghav Krishnaswamy\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Subject area of research: \_Machine Learning/Math Modeling\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**The faculty member who helped you the most with this idea: \_Mr. Writer\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**5 sentence (max) description of what you will be doing:**

**In our world there are an incredibly high number of illnesses/diseases and medical conditions with their being countless drugs to help will all of these medical conditions. Different combinations of these drugs interact differently inside the human body and predictions about their interactions need to be made in order to reduce healthcare costs and save lives. I will be using machine learning and integrating the chemical properties, therapeutic properties, genomic properties, dosage of the drugs, time between the taking of the drugs and other nutritional supplements the person is taking in order to predict drug-drug interactions between thousands of combinations of drugs. Based on their properties it will be analyzed if these drugs would have an effect on certain portions of the body such as certain veins or the liver. This information would then be created and stored for thousands of drugs allowing for a model to be created and allow for future predictions of drug-drug interactions and this knowledge can be further expanded to predict drug-nutrient interactions and drug-disease interactions.**

**Any materials you know you will need, especially ones that are potentially dangerous or expensive: (We know this list will grow in the future.)**

**As of right now the only materials that I will need that I do not currently posses is a more capable laptop than what I have today. I also may need access to certain databases of data that I cannot access.**

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**Teacher Evaluation: \_\_\_\_\_\_Doable (with slight modification) \_\_\_\_\_\_Doable with much modification \_\_\_\_\_\_Not doable**

**Teacher with whom student should discuss project next:**

**Teacher Comments:**