# ais57

## Alexandra Schwab's Individual Contribution Page

### Fall 2014

This semester, I am on the StaRS Theory team. The goal of this team is to create a mathematical model to describe the functions of the sand filter. By creating a mathematical model, we will know how long the filter can run before it fails. As a result, the plant operators will know when to backwash the system. This is important because if the filter is backwashed too early, water is wasted; if the filter is backwashed too late, people will receive water that has not been completely filtered.

In order to create this mathematical model, we are currently analyzing the data from last semester so that we can try to replicate this data ourselves. After this, we will design and test experiments to find relationships between head loss, effluent turbidity, pore storage volume, and amount of coagulant added.

I am also the data coordinator of the StaRS Theory team. As data coordinator, I ensure that our data is organized efficiently, and I preview our data prior to team meetings in order to facilitate discussion.

### Spring 2015

This is my second semester on the StaRS Theory team. Last semester, some of our experiments showed head loss across the copper mesh (which serves as a model of the slotted pipes used in AguaClara filters) of our apparatus. This semester, we plan to learn more about this by testing head loss across a slotted pipe model, instead of our current copper mesh substitute. Head loss across the slotted pipes will result in less efficient water filtration, so this step is important in optimizing AguaClara filters. If significant head loss is found across the slotted pipes, we will begin designing and testing new ideas, in collaboration with other subteams.