



Williams Honors College
The University of Akron
Akron, OH 44325-1803

Honors Research Project Proposal

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1. **Goals and Objectives:** In the initial section of the proposal, describe the specific research questions to be addressed, as well as the goals and objectives of the project. What are the motivations for the work and the benefits if successful? This section should be written at a level that is readily accessible for non-experts in the field of study.
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Honors Research Project Proposal

Please Print




Name: Noor Fahoum	Student ID: 4094030
Email (@zips.uakron.edu): nf37@zips.uakron.edu	
Title of Proposed Project: Potential Water Treatment Residual Used for Eutrophication: Varying Bake Time and Wet-Dry Release Experiments	
Major: Civil Engineering	Graduation (semester/year): Spring/2022

Please include a brief (maximum 200 words) summary of your proposed project

Eutrophication is a growing concern in water ways as it can contribute to the formation of harmful algae blooms to occur. A solution is to reduce the limiting nutrients, such as phosphorus, that enter the waterways from human activities. Water treatment residuals (WTR) have been found to have an affinity for phosphorus and can be used to prevent potential harmful algal blooms from occurring. Two types of WTR were used in experiments: which are Alum-based WTR (Al-WTR) and Al-WTR that also contained powdered activated carbon (PAC-WTR). Both are byproducts of the water treatment plant. Both contain Aluminum Sulphate complexed with up to 18 water molecules. The powder activated carbon in PAC-WTR was added to remove organics and taste-and-odor compounds during the water treatment process. The two objectives to this project are to i) determine the optimal baking time of the WTR's to increase adsorption and decrease desorption; and ii) to evaluate potential desorption (i.e., release) from the WTR placed in-field during a rain event. These experiments were conducted in the last two years.

This project has allowed me to run experiments in a field of study that I am passionate about which is the water treatment. I have learned so much with designing and running these experiments along with writing this report. It will allow me to get a sense of what writing a thesis will be like as I hope to pursue my master's in water engineering after undergrad.

Approval:

Honors Course No.: 4300 497-003	No. of Project Credits: 3									
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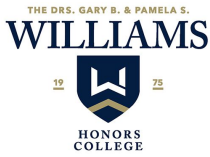
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Approval:

Honors Course No.:	No. of Project Credits:
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Reader Signature/Date <i>Christopher Miller</i> , 1/11/21 <div style="display: flex; justify-content: space-between;"> Print name Email: </div>	
Reader Signature/Date <div style="display: flex; justify-content: space-between;"> Print name Email: </div>	
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