**Research Plan**

Instructions: Using the suggested research activities presented at the end of each lecture, identify at least one activity that you are most interest in and will be involved in upcoming months.

**Faculty Name:**

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**Institution:**

Huston-Tillotson University

**Title of the Research:**

Air Quality Monitoring at Huston-Tillotson University

**Will it be a collaborative work with other partners (if yes, name of the partner):**

Yes – we hope to link with the other RE-ENERGIZE campuses for this work.

**Objectives of Activity:**

1) Install indoor and outdoor air quality monitors for CO2, VOCs, and particulates on the HT campus.

a) One monitoring station will be installed outdoors with the RE-ENERGIZE solar system. This system will provide continuous monitoring data.

b) One monitoring system will be installed indoors in the DL Science Building. This system will provide continuous monitoring data.

c) We will maintain one portable system. Ideally, this will be a higher sensitivity system that we can take to experimental environments, partner school sites, and other buildings on campus.

2) Initiate introductory-level student research projects that use the monitors to compare indoor and outdoor air quality values and examine trends. This will provide opportunities for intro-level (freshman-sophomore) research activities that reinforce basic research skills and data analysis.

3) Establish groundwork for upper-level student research projects. Students may investigate

a) Differences in air quality between buildings and/or rooms on campus. Students would have to research air quality testing protocols, develop a protocol suitable to their equipment and questions, collect and analyze data.

b) The effects of air quality on solar panel efficiency. We would have to partner with a lab that can help us fabricate a polycarbonate box to enclose the solar panel. Students would recreate pollutant conditions within the boxed panel environment and monitor impact on the output.

c) The relationship between air quality and floating microbiota. This would relate the air quality monitoring to a current HT research project investigating the bacteria and fungi that live on indoor surfaces, including central air conditioning/heating systems. Students are already investigating the DL building microbiota. We would be able to capture microbiota on filters and analyze their composition in parallel with the air quality monitoring.

Each of these projects has broader impacts potential in terms of class activities and relationship to the environmental justice issues that anchor much of our STEM sustainability education at HT.

**Possible deliverables/output (a product, software, article, etc.):**

Articles, student/faculty/staff presentations, classroom activities, engagement activities, citizen science initiatives.

**Expected Students involved:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Email** | **Field of interest** | **Hours/week working** | **Minority?** | **Female Minority?** |
| **Tami Igoni** | **Tammychris58@gmail.com** | **Biology** | **10** | **Y** | **N** |

**With additional students beginning Summer 2016**