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EPA National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet

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EPA National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet

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Project Summary

U.S. Environmental Protection Agency (EPA), as part of the P3-People, Propensity and the Planet Award Program, offers annual national student design competition, highlighting the use of scientific principles in creating innovative projects focused on sustainability. The P3 program is intended to support science-based projects and designs developed by interdisciplinary student teams that benefit people by improving their quality of life, promote prosperity by developing local economies, and protect the planet by conserving resources and minimizing pollution. There are six research areas of interest: energy, built environment, materials and chemicals, water, urban green water infrastructure and clean cookstoves.

Dr. Wu plans on setting up a UAH team and competes for the 13th annual P3 awards, focusing on the research area of water. Possible topics include but are not limited to point-of-use/point-of-entry drinking water treatment technologies and energy-efficient technologies for wastewater and water reuse. The design team will consist of the Principal Investigator/faculty advisor (Dr. Wu), one graduate student, one or two undergraduate students. The research proposal is expected to be

due by Dec. 2015 and the students on the team are required to be enrolled in UAH at the time the proposal is submitted.

Student Duties

Under the PI's supervision, the student team member is expected to identify the technical challenge the team will research, conduct literature review, and come up with innovative approach and/or design to solve the problem for group discussion. The student duties also include: design and fabricate laboratory reactors, carry out laboratory experiments, analyze samples and collect data used as preliminary results to help develop the research proposal due by 12/2015. The student will get training in creative thinking and engineering design; learn how to review scientific papers, set up and run research experiments; gain hands-on experience in standard procedures and instrument for water sample measurement and data analysis.

Mentor Supervision and Interaction

The undergraduate student will work closely with the faculty advisor and other team members. Dr. Wu will give an overview of the competition and possible research topics and provide guidelines for the student members to start with. Group meeting will be scheduled weekly in TH S243, reviewing the progress, discussing any problems encountered, and developing future work plan. One-to-one meeting with the PI can also be set up as needed. In addition to the weekly progress report (oral or written), the student is expected to submit a 10 ~ 12 pages report at the end of summer, summarizing the research activities undertaken, progress and results. Upon mutual satisfaction, the student may continue working in the PI's research group as a student specialist after summer 2015.