Brenda Van der Wiel
Theatre
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SUMMARY OF PROJECT:

In order to provide students education in digital rendering technology, the students must have access to technology in a way that allows this art tool to be integrated into our lab studios in a comprehensive way. In other words, the digital tablets need to easily interface with the computers in our lab, allow students to leave work in progress for extended periods, and be available for use at any time. These educational factors have led us to seek funding for three Wacom Cintiq Pro digital drawing tablets. The purchase would be a start towards acquiring the technology necessary to provide students with skills in digital drawing, which has become an industry standard expectation. Not only are digital rendering skills required by many employers and/or graduate programs, potential undergraduate students are demanding education in this technology as one factor in choosing where to study. It seems imperative to answer these needs.

Ed Munoz
Ethnic Studies & Sociology
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SUMMARY OF PROJECT:

The Board of Regents approved a new Criminology major administered through the Department of Sociology effective this academic year. This group grant application supports in-class and off-campus activities for Criminology, Ethnic Studies, and the University of Utah Prison Education Project faculty and students. Texas A&M University Associate Professor of Sociology, Robert J. Durán, is a leading scholar in the field of criminology in general, and gangs in particular. Dr. Durán is a Utah native, former gang member, Weber State alumnus, and former criminal justice professional. He has agreed to share his expertise with faculty and students (≈ 450) through course guest lectures and public lectures over a three-day period. Lectures will be videoed for future classroom and online use. Activities can help further a growing interest in Ethnic Studies and Criminology majors and careers.

John Horel
Atmospheric Sciences
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SUMMARY OF PROJECT:

We will develop an ongoing active-learning effort for undergraduate students to build, calibrate, and deploy low-cost, highly functional portable weather stations that can be utilized at local K-8 schools. This effort builds on the open-source 3D-PAWS to build sensor systems and the infrastructure of the Environmental Instrumentation Laboratory (703/706 WBB). This effort will begin as an initiative during Fall 2019 (ATMOS 5250, Mountain Weather, PI Horel, Instructor). We need to purchase supplies for 3 first-generation systems and two 3-D printers in order to be able to complete, calibrate, and test the sensor systems in a timely fashion. Then, 2 sensor systems will be developed annually as part of ATMOS 5050 (Environmental Instrumentation, CoPI Crosman, Instructor). The 3-D printers will be available to all undergraduate majors to complete projects as part of the major's capstone course projects that can be supervised by other faculty in the department (ATMOS 5900).

Lynn Maxfield
School of Music
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SUMMARY OF PROJECT:

We are applying for a group teaching grant in the amount of $7,000 to purchase a Phonatory Aerodynamic System (PAS), which is a device that captures real-time measures of airflow and lung pressure during phonation. The PAS will allow for teachers and students to explore different aerodynamic strategies used by singers and speakers in a wide variety of settings, providing a quantitative view of elements of the users' technique that can otherwise be only described qualitatively. From a pedagogical standpoint, the addition of this instrumentation will aid students in understanding the complex aerodynamic forces at play during voice use. The PAS will complement existing acoustic analysis equipment to provide students with a more complete picture of how voice-technique choices impact acoustic outputs. This device can be immediately utilized in a wide range of courses across the College of Fine Arts, supporting the nationally-recognized Voice and Vocology programs at the University of Utah.

Sonia Albert-Sobrino
Film & Media Arts
Sonia.albert@utah.edu

SUMMARY OF PROJECT:

The purpose of this grant is to purchase a professional grade 360-camera and accessories that will allow the Film Production Students in the Cinematography Track to become well-rounded Directors of Photography. While our department already serves most of those needs, recent years have witnessed an increased demand of Cinematographers specialized on 360-video. Consumer level 360-cameras, such as the GoPro Fusion do not serve the needs of the film students interested in finding a career in professional cinematography. It is for that reason that, we strongly believe in teaching them the industry standards, thus purchasing a more complex and with a higher learning curve device (Insta360 Pro II Spherical VR 360 8K Camera Premium Bundle and Zoom H3-VR Handy Audio Recorder with Built-In Ambisonics Mic Array) as well as the necessary equipment to post-produce the footage (Mistika VR) and visualize it (Lenovo Headset).

Tabitha Buehler
Physics & Astronomy
tabitha@physics.utah.edu

SUMMARY OF PROJECT:

This project would allow us to acquire equipment to use for lecture demonstrations and student group activities in our updated introductory astronomy courses. We are currently working to incorporate more active learning in these courses, and these materials would help to facilitate those efforts. We are beginning to take advantage of the new active learning-ready facilities in the Crocker Science Center, and having these demonstration items stored in close proximity would have a higher impact on those courses. The equipment would also be valuable for use in outreach activities that our instructors are involved in. The use of these materials in the new curriculum that we are developing will enhance student learning and increase enrollment in these courses.

Gernot Laicher
Physics & Astronomy
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SUMMARY OF PROJECT:

I am applying for a Teaching Grant in the amount of $1704.00 to support my efforts to improve the Physics labs for Scientists and Engineers. I would like to attend two workshops in June and July which are designed to help instructors with practical strategies for enhancing student learning as well as integration of computation into the undergraduate curriculum. In the first workshop (Summer Institute on Scientific Teaching) participants learn about active learning, assessment, and inclusive teaching. In the second workshop, a summer Faculty Development workshop at the University of Wisconsin in River Falls (PICUP - Partnership for Integration of Computation into Undergraduate Physics), participants, with the guidance of the workshop coordinators, will develop a viable, personalized plan for integrating computation into their undergraduate physics courses.

Jeffrey Moore
Geology & Geophysics
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SUMMARY OF PROJECT:

Ambient vibration recordings represent a new type of archival media, akin to a photograph, capable of capturing a dynamic portrait of natural landforms like rock arches and bridges. These measurements can be sped up and experienced as sound, or analyzed for their frequency content to assess structural damage. However, equipment needed to make such recordings typically costs ~$20,000. To lay the groundwork for more widespread application from the classroom to citizen science, we propose to test the ability of a low-cost seismograph, the Raspberry Shake, to make accurate resonance measurements on natural arches. We plan to benchmark Raspberry Shake vibration data against coeval measurements from a research-grade seismometer. If successful, the Raspberry Shake can be employed by high school, community college and undergraduate students, hobbyists, and researchers alike to capture and share the dynamic properties of rock landforms, and would enable widespread collection of vibration data as archival media.

Jennifer Weidhaas
Civil & Environmental Engineering
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SUMMARY OF PROJECT:

I am applying for $1740 to purchase a chemical equilibrium modeling software to support modernization of the Civil and Environmental Engineering curriculum. The software will be used in conjunction with new laboratory experiments planned under the revised CVEEN curriculum, where a laboratory section is being added to our Introduction to Environmental Engineering course (CVEEN 3610). The software will also be used in up to six other CVEEN courses and Nuclear Engineering. Utilization of the software in the CVEEN curriculum will address a key weakness in the preparation of our engineering students for their professional careers. Specifically, this software will aid in their understanding of the impact of CVEEN practice on environmental systems.

Sameer Rao
Mechanical Engineering
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SUMMARY OF PROJECT:

This project seeks to develop cut-away models of heat exchangers (HX) to enhance the learning experience for students in thermal-fluid sciences courses. HX come in varied forms and functions and are some of the most common thermal-fluid devices that exist. In fact, if a mechanical engineering student works in the thermal sciences space, there is a strong possibility, their daily job duties will include analysis of HX. In my experience, students find it a difficult concept to understand as they are not able to visualize the complicated internal flow pathways. I would like to develop cut-away (or sectional) models that students can take apart and piece together to consolidate their understanding. Animations can only provide part of this experience. Off-the-shelf models are roughly priced $4,000 per type of HX. I propose to leverage 3-D printing facilities on campus to print several common types of HX at a low cost.

Yong Lin Kong
Mechanical Engineering
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SUMMARY OF PROJECT:

I am applying for a teaching grant to purchase a stereolithography 3D printer and supplies to support the newly developed “Additive Manufacturing” course, which will start in Fall 2019. This will provide the students with hands-on exposure and experience to use stereolithography 3D printer. Specifically, the student will be provided the opportunity to design a freeform meso-scale architecture or device (e.g., microfluidics) to explore the application and limitation of the stereolithography fabrication process. This experience will support the class’s theoretical conceptual lectures, provides opportunity of critical thinking and creative process, allowing the students to gain invaluable hands-on experience in translating computer-aided design model to a physical prototype.