



ACHIEVE

RESEARCH & GRANTS ACTIVITIES @ ROBERT MORRIS UNIVERSITY • 5th Edition Volume 1 • Fall 2019

Associate Provost's Message

The Research & Grants Administration (R&GA) is happy to share the Fall 2019 issue of the R&G Newsletter. We hope this newsletter will play an important role in showcasing research & grant activities at RMU.

In this issue, we feature thirteen grant applications submitted by RMU faculty from January to June 2019. The summaries presented here are in the Principal Investigators' own words. Some of these applications have been awarded and others are pending. For this period, eighteen opportunities were discussed/explored and twelve full proposals and one Letter of Intent were submitted. All grant proposals were written by our faculty and staff with support from Research & Grants Administration, and Financial Operations. As always, supporting institution data was provided by the Office of Institutional Research.

The Research & Grants Administration encourages all faculty and staff to pursue research and participate in various research & grants related activities. The R&GA is available to help you answer questions related to grant searching, writing, budgeting, and managing. Please contact us with your questions, comments, suggestions, and concerns. Starting January 2019, all faculty and academic administrators are requested to contact R&GA for all grant opportunities before proceeding to Institutional Advancement or to any potential funders.

Have a great Fall semester!

Sincerely,

Sushil Acharya
*Associate Provost for Research,
Global Initiatives and Development*



➤ Development and Commercialization of Laser Welding Systems for Joining Plastic Components

Grant Agency: Commonwealth of Pennsylvania's Department of Community and Economic Development (DCED)

Dr. Benjamin Campbell is the Principal Investigator and Dr. Luis Monterrubio is the Co-PI of this project, and MECCO is the industry partner. Together RMU and MECCO will explore additional applications of laser welding, using a newly designed and assembled workstation. RMU students will fabricate parts for testing multiple aspects of weld quality. They will also investigate welding 3D printed parts, help construct a thermal model for heat transfer and compare it to experimental data. The work is expected to generate several thesis projects and support at least 3 interns. The grant will also permanently place an industrial laser marking system in the RMU Learning Factory, add a new microscope, and pay for much needed software upgrades on testing equipment.

Ben Campbell
*Principal Investigator
Associate Professor of
Engineering, SEMS*



Luis Monterrubio
*Co-Principal Investigator
Associate Professor of
Mechanical Engineering, SEMS*



Grant Proposal Activities - January to June 2019



Grant Opportunities
Explored



Grant Proposals
Submitted

➤ Leadership by Design: Expanding Principal Certification for the Pittsburgh Urban Leadership Corps

Grant Agency: **The Pennsylvania Department of Education**

This 2019-2020 expansion grant extends the initial 2018-2019 grant work of Drs. Philip Harold and Bruce Golmic in partnership with Propel Charter Schools, Pittsburgh Urban Leadership Corps. The principal program, Leadership by Design, is a competency-based program that focuses on the eight domains associated with school leadership: organizational leadership, instruction and assessment, standards-aligned curriculum development, teacher evaluation, budget and finance, school law, collaboration/communication, and school/community relations. Leadership by Design involves a one-year principal clinical residency in a high-needs urban school. There is a national shortage of principals, and historically high-needs schools in urban settings face teacher and administration shortages and overwhelmingly high turn-over rates. The clinical residency experience provides teachers in urban settings who are aspiring principals with education and support to develop their leadership skills and attain principal certification. Propel Charter Schools provide school sites for principal internships and mentors with the aim of creating a pipeline of highly effective school leaders with the appropriate skills and tools to increase student achievement, improve school climate, and to model a school leader-training program that addresses the specific needs of schools in urban settings. The expansion grant provides tuition support for principal interns in high-needs schools who commit to lead in a high-needs urban school when finished with the principal program and receiving PDE principal certification.



Vicki Donne
Principal Investigator
Professor of Education,
SNEHS



Shelly Haser
Team Member
Professor of Education,
SNEHS



Mary Hansen
Team Member
Professor of Education,
SNEHS



Michael Quigley
Team Member
Assistant Professor of
Organizational Leadership,
SIHSS



Zhou Yang
Principal Investigator
Associate Professor of
Economics, SIHSS

➤ A Modern Approach to Land Valuation: An Application of Artificial Neural Networks

Grant Agency: **Lincoln Institute of Land Policy**

The advancement of information technology within the last decade has enhanced the uptake of modern mass appraisal methods. This project proposes to utilize artificial neural networks to estimate land value. A major advantage of this technique is that it does not require prior assumptions about data or functional forms. It allows us to process complex nonlinear relationships without much parametric restrictions. In addition, studies have shown that artificial neural network models tend to provide greater predictive accuracy than conventional regression models in many cases. The proposed research enables assessors and public officials to produce more accurate and reliable estimates in a timely manner.

➤ Religious & Spiritual Diversity on Campus

Grant Agency: **Interfaith Youth Corporation (IFYC)**

Dr. Stuart Allen and Dr. Tim Schlak received a \$4,000 grant on behalf of the Religion and Spirituality Focal Group of the President's Inclusion Council from the Interfaith Youth Corp (IFYC). The grant will be used to develop and deliver a series of workshops for students, faculty, and staff similar to the Green Zone and SAFE training but focused on religious and spiritual diversity. RMU is a diverse community with multiple religious and spiritualities present. However, there has been limited focus on this aspect of diversity in student development programming. The 2018 shootings at the Tree of Life Synagogue in Pittsburgh highlighted the need for respect and understanding of different faiths in the Pittsburgh community and nationally. In addition, students as future professionals must be prepared to work and lead in multi-faith workplaces. The workshops are intended to be developed and delivered in the 2019-2020 academic year.



Stuart Allen
Principal Investigator
Professor of
Organizational Leadership,
SIHSS



Tim Schlak
Principal Investigator
Assistant Professor of
Learning Resources,
RMU Library



Terri Devereaux
Project Director
Associate Professor of
Nursing, SNEHS

➤ RMU Wellness Center at Center for Hope

Grant Agency: **RK Mellon**

RMU Department of Nursing has partnered with Center for Hope (CFH) in Ambridge, PA to provide improved access to healthcare for their clients. In partnership with CFH a \$356,000 RK Mellon grant was awarded of which \$228,000 was awarded to RMU. The RMU Wellness Center at Center for Hope will provide education, screening, and care coordination/navigation for CFH clients. In addition, the Center will provide rich clinical opportunities for both the undergraduate and DNP family and adult geriatric nurse practitioner students to learn to care for underserved populations. Opening of the wellness center is planned for September 2019.

➤ Emergent Technologies in Accounting Curriculum Development

Grant Agency: **PwC INQUIRES Program**

As many emergent technologies are disrupting businesses, professional accounting firms are on the frontline of this challenge. With the generous support from PricewaterhouseCoopers, we will develop up to five (5) teaching tools that emphasize on data analytics and the use of technologies in accounting, taxation, or auditing field. The goal of this project is to integrate data analytics and emergent technologies that can be adopted in various accounting courses. Examples of these emergent technologies or topics are Data visualization, Predictive statistics and tools, Blockchain, Artificial intelligence, Task automation, Robotic process automation, and Text analysis. We will work with PwC's "digital accelerators" to collaborate on the creation of these tools. PwC's professionals will act as a consultant to provide experiences and input to their RMU counterparts. In addition to sharing the emergent technologies teaching tools, we also seek the opportunity to showcase the development of these tools in RMU's annual high school outreach event. RMU will feature technologies in accounting for high school students when this event is held. RMU will seek the possibility of organizing this event as a diversity initiative that promotes women in the professional accounting field. In addition to technologies in accounting, this event will feature female professionals and their careers in public accounting to encourage female high school students to consider careers in technology and accounting.



Jacob Peng
Principal Investigator
Associate Professor of
Accounting, SBUS

> Planning Grant for RMU's Year-long Residency



Vicki Donne
Principal Investigator
Professor of Education,
SNEHS

Grant Agency: **PA Department of Education**

In order to address the recruitment and retention of teachers in Pennsylvania schools, and particularly those in high-needs schools, Pennsylvania's ESSA Consolidated State Plan committed funds to support high-quality, clinical experiences in teacher preparation programs and in particular teacher residency programs. Presently the state requires a fifteen-week student teaching placement. A planning grant was submitted to design a one year program to provide RMU undergraduate teacher candidates seeking certification in areas with teacher shortages with a yearlong residency and provide them with the training and mentorship on site to address the teaching challenges in high needs schools. The planning grant addressed the teacher shortage areas of special education through our undergraduate Early Childhood Education with Special Education (PreK-8) program and math through our Middle Level (Math concentration) program. These programs were also selected because they represented areas of difficulty for hiring and retaining teachers by our partnership schools: Propel Charter Schools and Cornell School District. During the yearlong residency teacher candidates would be mentored by a cooperating teacher in a partner high-needs local education agency and supervised by an RMU teacher education faculty member. Teacher candidates would complete RMU coursework integrated with clinical practice through the yearlong residency that is designed to include evidence-based practices in teaching schools. The grant team included Drs. Vicki Donne, Mary Hansen, Shelly Haser, Fan-Yu Lin, and Michael Quigley.

> The Online Institute for Transformational Leadership & Innovation in Academic Libraries

Agency: **LYRISIS**

Transformational Leadership is a burgeoning development that is reshaping leadership in higher education as it is practiced and taught through elite preparatory and executive coaching programs. Moreover, rigorous methodologies for producing innovation are increasingly being taught and expounded in higher education as *design thinking* moves from corporate contexts to academia. As presented at national conferences, innovation in academic libraries regrettably often consists merely of anecdotal practical applications that individual libraries discovered work in their local contexts with little exploration of the principles of design and trends in higher education that would benefit a more general library audience. The goal of this project is to create an affordable, online institute for academic library leaders to participate in a cutting-edge curriculum that focuses on transformational leadership and innovation specifically tailored to academic libraries. Participants will expand their understanding of innovation as a practice but also will have opportunities to critically investigate their understanding of leadership through online modalities taught by esteemed faculty as well through virtual coaching sessions with the same faculty.



Tim Schlak
Principal Investigator
Assistant Professor of
Learning Resources,
RMU Library

> Nurse Practitioners for Underserved Practice (iNPUT)

Grant Agency: **Health Resources & Services Administration (HRSA)**



Terri Devereaux
Project Director
Associate Professor of
Nursing, SNEHS

The HRSA Advanced Nursing Education Workforce (ANEW) program supports academic clinical partnerships to educate and graduate primary care Nurse Practitioners (NP) who are academically and clinically prepared for the unique challenges of transitioning from nursing school to practice in rural and underserved communities. A proposal to provide unique primary care and psychiatric clinical experiences in rural and underserved areas for RMU family and psychiatric mental health nurse practitioner students was submitted on behalf of the RMU DNP program and Primary Health Network, a network of 40 primary care sites serving rural and underserved populations. A score of 97/100 was achieved.

> Evaluation of Factors Influencing Emissions from Fused Deposition Modeling (FDM) Process

Grant Agency: **CDC and NIOSH**

In collaboration with the CDC and NIOSH, engineering faculty and students are investigating methods of recycling 3D printing plastics, common household plastics, and composite materials. Materials properties such as strength, flexibility, melt temperature, and other factors are characterized. Suitable 3D printing filaments are prepared where necessary with emphasis placed on the potential for outgassing harmful volatile compounds. The resulting consumables are used to create rapid prototypes that are printed utilizing FDM 3D printers. The resulting prototypes are also analyzed for strength and finish. The materials are then recycled while the process is monitored by performing emissions and airborne particulate matter tests. This research provides RMU's knowledge, experience, and equipment to NIOSH research team enabling them to complete this environmental health study.



Paul Badger
Principal Investigator
Associate Professor of
Chemistry, SEMS



Arif Sirinterlikci
Co-Principal Investigator
University Professor of
Industrial and Manufacturing
Engineering, SEMS



Marcel Minutolo
Principal Investigator
Associate Professor of
Management, SBUS

> The Analytic Hierarchy Process to Promote Desistance from Crime

Grant Agency: **US Department of Justice**

The project proposes a research program that advances the understanding of strategies that enhance desistance, including factors that can be influenced through interventions. Central to the project is a prioritization model based on expert knowledge and experience intended to: 1. Identify the factors believed to contribute most to Desistance; 2. Prioritize the factors; 3. and, Validate the findings. The anticipated impact of the prioritization is to minimize continued interaction with the criminal justice system. In proposing a hierarchical prioritization model, the project team seek to develop a model to explore the range of options confronting the individual, the police, and the broader community. These three "stakeholders" are at the core of the incarceration-desistance-recidivism discussion; it is impossible to address one leg of the triangle without examining the other two. Partnerships: Robert Morris University; Allegheny County, Department of Health and Human Services, Office of Analytics, Technology and Planning (DHS).

> The First Amendment on Trial

Grant Agency: **Middle Tennessee State University**

Communication faculty Ann D. Jabro and David Jamison were competitively selected as recipients of a \$2,000 grant from the Free Speech Center at Middle Tennessee State University for their proposal "The First Amendment on Trial". The faculty have created problem-based and experiential learning experiences for their classes. Ann's Social Media and Public Relations students will work in teams and be responsible for developing social media campaigns and organizing and promoting Civic Education Forums on one of the four specific freedoms guaranteed by the First Amendment. Traditional and social media will be used to publicize and promote interest in the programs which will be held on campus. Selected students in David Jamison's Political Science class in Civil Rights/Civil Liberties will serve as content experts/advocates. A Moot court format will be followed with four students taking the roles of advocates on two sides of a significant current topic in first Amendment Law. The format would be "The First Amendment on Trial." The moderator, an RMU faculty member, will present a hypothetical legal dispute, focusing on the specific right under discussion. Two students would advocate for one side of the disputed issue, two would argue the other side. A technology-aided vote and response from the audience will be employed to help evaluate the arguments. Watch for promotion materials announcing the dates of "The First Amendment on Trial" events and join us for lively debate and discussion.



Ann Jabro
Principal Investigator
University Professor of
Communication, SIHSS



David Jamison
Co-Principal Investigator
Professor of Communica-
tion & Political Science,
SIHSS

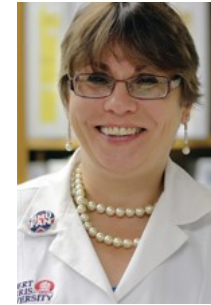


Preparing the Future Workforce: A Collaborative Effort Between RMU School of Engineering, Mathematics and Science, Cornell School District (PA), Canon-McMillan School District (PA), and Weir High School (WV)

Grant Agency: **Benedum Foundation**

RMU SEMS, along with the Department of Education and the Department of Communications, will work with its high school partners to prepare their students for career success in emerging workforce areas including: advanced/digital manufacturing and microbiology/infectious disease epidemiology. While equipping students with the relevant technical skills, the program will also support the development of the soft skills to excel in the workplace. These skills are considered in multiple themes and will be integrated into the technical curriculum for greater effectiveness. This project will also address Common Core State and the Next Generation Science Standards.

The instruction and practice of the soft skills will be designed as discrete modules, with each covering one or more example concepts. The delivery of these modules will be integrated within the technical modules or leveraged as components of existing STEM curricula. Modules will include the requisite instructional content and activities (e.g. deliverables) along with insights and guidance on module integration (e.g. mappings between soft skill activities and technical activities) and assessment at the student (learner), the teacher (instructor), and overall programmatic levels.



Maria Kalevitch
Principal Investigator
University Professor
of Biology, SEMS



Anthony Robins
Senior Personnel
Associate Professor of
Biology, SEMS



Arif Sirinterlikci
Senior Personnel
University Professor of
Industrial & Manufacturing
Engineering, SEMS



George Semich
Senior Personnel
University Professor of
Education, SNEHS



Cheryl Maurer
Senior Personnel
Director, Science Labs,
SEMS



Anthony Moretti
Development Team Member
Associate Professor of
Communication, SIHSS



Jameela Al-Jaroodi
Development Team Member
Associate Professor of Software
Engineering, SEMS

Contact us:

Sushil Acharya, *Associate Provost*

acharya@rmu.edu

412-397-4023

Lisa Nauman, *Grants and IRB Specialist*

nauman@rmu.edu

412-397-6227

Published by the Research & Grants Administration, Academic Affairs, Robert Morris University