



Research and Scholarship

JMU Research, Scholarship & Creative Endeavors

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Greetings from Harrisonburg, where the surrounding area has undergone its annual transformation from lush green fields and forests to beautiful shades of orange and red, and of course, purple and gold!

COVID-19 Update

As many are aware, JMU resumed a hybrid instruction program with both in-person and online classes on October 5th, while also introducing additional public health measures across campus. Please visit JMU's [Stop The Spread website](#) to stay informed of the latest COVID-19 operational updates, as well as plans for the spring 2021 semester.

The Shenandoah Valley Technology Council hosted a virtual TechNite20 on October 7, recognizing technology leaders and organizations from up and down the Shenandoah Valley. Our congratulations to the AR/VR Healthcare Simulation Course, selected for the Innovation in Higher Education Award. This collaborative effort leading to innovations in healthcare simulation design is a partnership of the Department of Communication Sciences and Disorders, Industrial Design B.S. Program, and the JMU X-Labs. The [TechNite20 program](#) described one outcome of this research as leading to “early stage development of a mixed reality (MR) simulation to train graduate students and professionals in speech language pathology for assessing swallowing function in adults with neurological disorders.”

We'd also like to recognize Lauren Alleyne, assistant director of the Furious Flower Poetry Center and associate professor of English, who was a finalist in the poetry category for the Library of Virginia's 23rd Annual Literary Awards. [Read an interview](#) conducted by University Communications to learn more about Alleyne's writing and the impact it has on her teaching.

Office of Research & Scholarship
James Madison University



Afton Mountain, Virginia

Faculty Grant Awards

For a monthly listing of recent faculty grant awards, please [visit the JMU Office of Sponsored Programs website](#). Here are some notable awards from August and September 2020:

Jolynne Bartley (Institute for Innovation in Health and Human Services) received \$185,629 from the Virginia Department of Education to enrich after-school experiences for economically disadvantaged students at Smithland and Waterman Elementary Schools outside of the school building through the use of the Gus Bus Mobile Classroom Vehicle.

Mark Gabriele (Department of Biology) and Lincoln Gray (Department of Communication Sciences and Disorders) received \$423,678 to advance our understanding of microglial-neuronal signaling in the establishment of multimodal midbrain compartments, their projection maps, and their behavioral significance.*

Hossain Heydari and Brett Tjaden (Computer Science) received \$209,304 from the Department of Defense to encourage faculty and students to perform cutting edge research, disseminate knowledge, foster collaboration, support outreach, increase the number of underrepresented students, help recruiting efforts, and educate cybersecurity professionals.

Casonya Johnson and Patrice Ludwig (Department of Biology) and Chia-Hsuan Yang (School of Integrated Sciences) were awarded \$1,017,171 from the National Science Foundation to understand the molecular mechanisms by which Hairy/Enhancer of Split (HES) proteins mediate transcriptional repression during embryogenesis.

Remy Pangle (Center for the Advancement of Sustainable Energy) received \$25,000 from the Dominion Foundation to support an engineering design competition where students build a wind turbine and compete to generate the most energy.

Paul Raston (Department of Chemistry and Biochemistry) received \$114,642 from the Missouri University of Science and Technology to obtain an individually-housed and serviced MAD-CP-FTMW/M₃WM spectrometer with unprecedented chiral coherent control capability open and accessible to the rotational spectroscopic community.

**more on this grant award in our next issue*

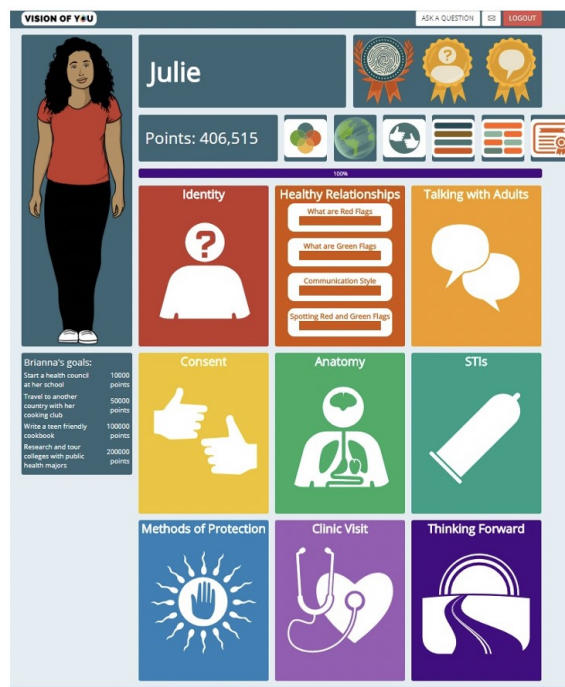
Center Spotlight: Institute for Innovation in Health & Human Services

The mission of the [Institute for Innovation in Health & Human Services](#) (IIHHS) is to engage students in career preparation by promoting scholarship, providing interprofessional learning experiences, and connecting our campus with communities through innovative programs that advance the quality of life. A closer look at the numbers from the 19-20 academic year tell a story of resilience and community impact:

- 1024 students representing 41 undergraduate and graduate degree programs
- 36,166 hours of student engagement in direct services, program assistance, and service learning
- 13,257 people served by IIHHS programs
- 170 events coordinated for the community
- 216 formal reports prepared and submitted
- 21 scholarly publications and presentations
- Extensive community impact thanks to grant revenues of \$7,006,831

With regard to research, IIHHS faculty and staff produced 21 scholarly publications and presentations, including associate director Kim Hartzler-Weakley's presentation at the 2019 American Public Health Association Annual Meeting last November -- "A gamified sexuality education intervention for high-risk youth populations: Preliminary findings from a randomized control trial." The focus of the presentation was on an interactive, self-paced online sexuality education program – Vision of You (the student landing page is pictured below), which was developed by IIHHS through grant support from the Administration on Children, Youth and Families (ACYF) Family and Youth Services Bureau (FYSB). Hartzler-Weakley explained, "[The program] uses engaging video, animation, interactive components, and gamification to serve high-risk youth residing in rural areas of Virginia with high teen birth rates." Results from this study include "promising implications for impacting knowledge, attitudes, skills, and sexual risk behavior among high-risk youth."

Asked about the role that students play in IIHHS sexuality education programming, Hartzler-Weakley responded, "JMU students have been involved in the project in a variety of ways. In the development phase, students helped us work on the content development and assisted in pilot testing. In the implementation phase, students have helped design marketing materials, assisted in the creation of a teacher's guide, and helped with the follow-up contact of students to complete their post surveys (immediate post, 3 months post, and 9 months post). We are currently working on a qualitative study with Dr. Cathy McKay in the Department of Kinesiology exploring undergraduate health and physical education teacher education (PHETE) student experiences with the Vision of You program."



College of Business Highlights

Showker Shoutouts:

Congratulations to professor of accounting Sandra Cereola, who recently published a paper in the *Journal of Information Systems*. Titled "How do Reporting Frequency and Analyst

Perceptions of Real Activities Manipulation (RAM) Influence Managers' RAM Behavior?,” the paper investigates the effects of reporting frequency and the knowledge that financial analysts view RAM negatively on the likelihood of management engaging in RAM. The study provides evidence showing that more frequent disclosure and educating managers of the negative consequences of RAM can be used together to reduce the use of RAM by managers, contributing to both reporting frequency literature and earnings management literature.

Congratulations to professor of accounting Paul Copley, who took the experience of committee work all the way to publication. For 18 months, Copley was one of two COB representatives on the Academic Affairs Strategic Planning Committee. He was talking with a friend about the committee and remarked that he had never worked on anything over such an extended period that had not resulted in either a publication or a new course. With the idea now in his head, he composed a manuscript based on research conducted for committee discussions. Titled “The enrollment cliff, mega-universities, COVID-19, and the changing landscape of U.S. Colleges,” it was recently published in *The CPA Journal*. Regarding the publication, Copley is quoted as saying, “Remember the adage: when life hands you lemons, make lemonade.”

Additionally, thanks to a substantial philanthropic gift from James ('70, '00P) and Carolyn ('00P) Hartman of Rockingham, Virginia, the new College of Business building has a name – Hartman Hall. A [story announcing the gift](#) shared the impact of the JMU faculty on Mr. Hartman, “The school didn’t have a football team when Jim studied at Madison, but he regards his undergraduate education with great appreciation: ‘I look back at those years as being really important, critical to our success in our family business, because it gave me a foundation. I learned from really excellent profs.’”

Interdisciplinary Class Develops Autonomous Vehicle for the Elderly



Students from the first Autonomous Vehicles class prepare the vehicle for its first demonstration at JMU X-Labs.

From CISE Marketing Communications:

The inaugural [Autonomous Vehicles] class won the 2018 Governor's Technology Award, received press coverage from several news outlets, and caught the eye of Dwight Miller, a Bridgewater Retirement Community (BRC) resident and retired architect. “That’s exactly the kind of thing that a lot of people who live here would benefit from,” says Miller. “We have people with mobility problems, we have people who can’t drive anymore, and it can be quite difficult for them to just get around the campus in these retirement communities.”

This new perspective led students from the 2019 Autonomous Vehicles class to explore new research to meet the unique needs of the elderly population living in retirement communities; including a user interface to adapt to passengers with vision and hearing difficulties, software to recognize a passenger medical emergency, and a network which would allow retirement community staff to remotely monitor the cart.

By the end of the Spring 2020 semester, students created a fully autonomous golf cart with a user-friendly interface designed for the elderly. The cart is able to actively monitor passengers, respond to their voice commands, and track their movements. “The students were able to do a project that’s real world,” says El-Tawab.

[Read the full story](#)

Learn more about how the JMU X-Labs and dedicated faculty and students from four different academic departments launched the interdisciplinary course in this [September 2018 story](#).

Physics Professor Awarded Department of Energy Grant

Associate professor of physics and astronomy, Adriana Banu, received \$96,000 in funding from the U.S. Department of Energy to “advance fundamental knowledge on a forefront topic in nuclear astrophysics – the nucleosynthesis beyond Fe of the rarest stable isotopes naturally occurring on Earth (the origin of p-nuclei).” Duke University’s High Intensity Gamma-Ray Source (HIGS) facility will serve as the site location for the experiment. Banu added, “[This work] will be a significant boon for nuclear science education at James Madison University and the inclusion of undergraduates in research. These students will have the opportunity to get hands-on experience in an accelerator-based environment and participate in cutting-edge research in nuclear astrophysics. This experience is an important part of their training as future researchers and will provide them with skills necessary not only to pursue academic careers but also for jobs at national or university laboratories.”

Religion Professor Featured on With Good Reason

David Kirkpatrick, an assistant professor of religion, was a guest on With Good Reason, a production of the Virginia Foundation for the Humanities, to discuss the Latin American origins of the evangelical left. When asked about the role of social justice in this movement, Kirkpatrick commented, “The Latin Americans and Latinos in my story, they are arguing that there is an equal social mandate there, as well as a spiritual mandate, and this is what they called *misión integral* or integral mission, and that is that justice or social justice is fused together with that spiritual mandate.”

Photo - René Padilla with his homemade “pan integral” (whole wheat bread), from which he derived his idea of *misión integral*. (Photo by David Kirkpatrick, Buenos Aires, Argentina, 2013).



Throughout the interview, Kirkpatrick draws upon his travels across three continents to conduct interviews and archival research. Kirkpatrick’s [2019 book](#) – *A Gospel for the Poor: Global Social Christianity and the Latin*



American Evangelical Left -- further examines his research and scholarship on this topic.

Photo - This 2013 photo of René Padilla was taken by David Kirkpatrick at Padilla's Kairos Center for Integral Mission, a sustainable Christian community in the heart of Buenos Aires, Argentina.

[Listen to the full interview](#)

Research on Early Field Experiences for Preservice Teachers Leads to Publication

JMU College of Education associate professors Katya Koubek (Department of Educational Foundations & Exceptionalities) and Amanda Sawyer (Department of Middle, Secondary & Math Education) recently published “Examining Influences of an Early Whole-School Immersive Field Experience on Preservice Teachers” in the *Action in Teacher Education* journal. Koubek and Sawyer commented on the impact of this work, “Our research highlights the importance of early field experiences for preservice teachers, and student organizations, like the one described in our paper, are a perfect way to help initiate this component into universities to enhance their already constructed course sequences. Our study indicated that these early field experiences were vital for our participants’ determining their future careers, and it helped them understand how to be professionals in this changing field.”

[Access the article here](#)

Abstract: Although much is known about the benefits of student teaching in developing preservice teachers, less is known about preservice teachers’ earlier field experiences at the freshman and sophomore academic levels. This study examined a student-led educational organization that provided an early, whole-school immersive field experience through the creation of the third space. The Whole-School Immersive Program (WISP) that created this third space brought together university faculty, preservice teachers, P-12 educators, and their administrators. Through a qualitative case study approach that utilized semi-structured focus group and individual interviews, alumni surveys, and participants’ applications, this study examined the program’s influences on preservice teachers. The findings indicated that these preservice teachers gained a deeper understanding of the school context, (dis)confirmed their desire to become educators, and gained knowledge of personal inquiry from participating in this student-led educational organization.

Leading During a Pandemic - JMU School of Music Welcomes New Director

From *The Breeze*:

When he accepted the position as the School of Music’s new director, John Allemeier transitioned into his role during a pandemic.

“I’d always known the reputation of JMU and the School of Music,” Allemeier said. “I loved the job description, and the school and faculty were amazing — still are amazing.”

Because of COVID-19, Allemeier wasn't able to see the school as it normally runs when he joined the staff. He said that the planning of this fall was intense because the majority of what students do in music, like singing, can be considered conducive for viral spread.

"I spent the summer learning what's safe and what isn't and how we can put those protocols in place in order for us to be safe in our classrooms, rehearsal spaces and even practice rooms," Allemeier said.

[Read the full story](#)

College of Health and Behavioral Studies Highlights

From Graduate Psychology:

Kristen Smith ('12, '14M, '17PhD) and graduate psychology professor Sara Finney published "Elevating Program Theory and Implementation Fidelity in Higher Education: Modeling the Process via an Ethical Reasoning Curriculum" in the journal *Research & Practice in Assessment*.

There is an expectation by stakeholders (e.g., parents, students, administrators, governors) that educational programming on college campuses are evidence based. There are two types of evidence necessary when discussing the effectiveness of educational programming: 1) when developing a new program, the developers should use existing evidence (e.g., research) to explain *why* the programming should result in the intended outcomes; 2) when assessing the effectiveness of the programming on campus, the developers should gather outcomes and implementation evidence to communicate *if* the programming impacted students.

[As Smith and Finney explain](#), JMU's Ethical Reasoning in Action (ERiA) exemplifies the thoughtful use of both types of evidence.

From Creative Services:

In May, the Department of Psychology [launched the Summer Research Experience for Underrepresented Undergraduates](#) (SREUU) program. The purpose of SREUU is to provide minority students with an opportunity to participate in faculty mentorship and gain practical research experience.

"Psychology's faculty strive to provide students with research mentorship experiences. Underrepresented students may have limited access to these opportunities. This program was designed to provide this opportunity for students who may otherwise not be able to work closely with faculty on a research project," said Kevin Apple, who supported faculty members as they founded the project during his time as academic unit head for psychology. While Apple has since been appointed to serve as associate dean for the College of Health and Behavioral Studies, he remains focused on cultivating opportunities for diverse students.

Additionally, a [recent announcement](#) recognized Carol Dudding, a professor of communication sciences and disorders, as a recently named Fellow of the American Speech-Language-Hearing Association (ASHA). Congratulations, professor Dudding!

Biology Professor and Student Publish Research on the Tegu Lizard

From University Communications:

There probably aren't many people who understand tegu lizard behavior better than James Madison University senior biology major Isabella Bukovich.

[In research designed to help manage the pesky invasive species](#) in Florida and Georgia, Bukovich spent hours upon hours watching video of the reptiles as they explored a Y-

shaped maze. She then described her research as co-lead author of a scientific paper published Aug. 12 in the peer-reviewed journal, *PLOS ONE*, detailing results and research methods.

Argentine black and white tegus are native to eastern and central South America, but have been brought to the U.S. by exotic animal breeders and people who keep them as pets, said Rocky Parker, a biology professor at JMU who has funding from the U.S. Department of Agriculture for the tegu research. Males can grow to more than four feet long while females generally grow to about three feet long. Their appetite for eggs makes them problematic in Florida and Georgia.

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