



# HensonNews

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Produced by Salisbury University's Henson School of Science and Technology



## Greetings from the Dean's Office of the Henson School of Science and Technology!

On behalf of the faculty, staff and students, greetings from Richard A. Henson School of Science and Technology at Salisbury University! We have had another outstanding start to the academic year, with a great deal of anticipation for the

opportunities to engage with and learn from our community of scholars. Henson Science Hall is buzzing with 350 new STEM majors – their energy is contagious!

Please join me in welcoming five new faculty to the Henson School. In the Biological Sciences Department, Kirsten Guckes (Ph.D. in microbiology and immunology from Vanderbilt University) and Kathryn Gill (Ph.D. in physiology and pharmacology from Wake Forest University) joined the faculty this fall. In the Department of Chemistry, Jessica Heimann (Ph.D. in chemistry from Yale University) and Zulma Jiménez (Ph.D. in chemistry from Florida State University) will be teaching inorganic and physical chemistry, respectively. Ben Goodberry (Ph.D. in mathematics from Virginia Tech) added his talents to our Department of Mathematical Sciences. And finally, Andrew Thompson (M.S. in mathematics education from Salisbury University) converted from an adjunct to a

full-time member of the faculty of the Computer Sciences Department.

The faculty of the Henson School continue to lead us in new and innovative curriculum upgrades. Forensic science is now a program within our integrated science major and is offered thanks to a unique partnership with Wor-Wic Community College. We now offer a certificate in pre-medical studies, a suite of courses specifically designed to prepare students to successfully complete the entrance exams for medical, dental and veterinary schools. Our computer science students can now focus their studies on software engineering, compThe challenge of

faculty of the Henson School are working constantly to devise new techniques to facilitate the learning of both foundational concepts and advanced topics. These vignettes will give you a taste of the work our faculty engage in daily to improve the educational outcomes for our students. If you would like to learn more about our curricular innovations or how you could help support both our students and our faculty in this critical work, please reach me anytime at [msscott@salisbury.edu](mailto:msscott@salisbury.edu)

– Dr. Michael Scott, Dean

## Innovations in

## Using AR to Create Learning Materials

Dr. Steven Binz, Associate Professor of Physics

Introducing a topic with a wide variety of representations can help students learn material. Concrete representations, like pictures or models, are particularly helpful early in the learning process.

is there are many concepts that haven't had robust concrete

cannot be seen nor interacted with directly. However, modern

Augmented Reality (AR) devices like the HoloLens 2 display 3D computer-generated content that looks like it's in the room without blocking the users view of the world around them, making it possible to display representations of physics concepts that can be easier to understand and more accurate than traditional representations.

Upon seeing the opportunity this represents to physics education, I started creating and studying the effectiveness of applications that harness modern AR to improve student learning. One application allows students to create and

changes in real time. Students move charges by grabbing

they see the same content but from a different perspective. Further, everyone using an AR device sees the same content in the same place, so students can collaborate seamlessly.

Another application is a game where students place electric

forces cause the structure to rotate.

Recently, I have been collaborating with Dr. Howard Winston and Dr. Diego Valente at the University of Connecticut,

UCONN to introduce electricity and magnetism topics. Work

new technologies. I also am collaborating with Dr. Megan Kelly, an assistant professor in SU's Accounting and Legal Studies Department, where accounting students present to virtual

communication.

## Grading to Encourage Mastery

*Dr. Alexander Halperin, Associate Professor of Mathematics*

Since 2016, I have implemented mastery grading in my algebra, calculus and linear algebra classes. Mastery grading is a pass/fail grading system that requires high standards for students to receive credit, but it allows for full-credit reattempts.

graded on an Mastery/Progressing/Needs Improvement (M/P/NI) scale, with only completely correct work receiving an M. Every quiz and homework assignment may be resubmitted,

which are given every three weeks. This encourages students

understand each course topic. A student's course grade is based on the cumulative number of Ms they receive by the end of the semester.

I detailed my approach, grade outcomes and student feedback in the paper "Mastery-Based Testing in Calculus with

Mastery Grading in the Undergraduate Mathematics

Issues in Mathematics Undergraduate Studies). I also spoke about mastery grading at the Joint Mathematics Meetings of the American Mathematical Society and Mathematical Association of America and SU's annual Teaching and Learning Conference.

## Flipping the Class

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success at winning scholarships and internships.

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