

CLAS Acts

A monthly newsletter from the College of Liberal Arts & Sciences



A Note from Dean Drake

I've been thinking about transitions lately. As a college, we have reached the semester's midpoint, the time when our academic work shifts from beginnings to endings. It is now March, a month marked by the transition from winter to spring. We are also at a notable point in our journey to launch the Voyage—taking our strategy and translating it into action. For all of us in CLAS, it is a time of transformation, a time of celebration, a time of anticipation. I like the way that [A House Called Tomorrow by Alberto Ríos](#) explores some of these feelings.

I would like to congratulate and welcome new and returning leaders to faculty governance. The election results will be announced March 3 and I know that those of you assuming these important roles will build on the foundation laid by those who came before. I thank all of you for your service to the college and your colleagues.

I would also like to celebrate the faculty who were honored at last month's [Faculty Convocation Awards](#) for their scholarly accomplishments, teaching excellence, and dedication to GVSU. You make CLAS shine brighter.

Last month, after much planning, we announced the new [Laker Accelerated Talent Link](#), an essential component of the Voyage. The Talent Link builds our capacity to offer equitable opportunities for our students, strengthen our community partnerships, and become more visible and valuable to our stakeholders. Not only does the Talent Link provide our students with a paid internship and a scholarship to earn an additional credential, it also highlights the value of a liberal arts and sciences degree to employers.

As we move through this transitional time, I celebrate the positive impact of your excellent work on our students and communities.

Best,

Jen

Spotlight on Dr. Shannon Biros Professor of Chemistry

This month, Chemistry Professor Shannon Biros discusses her research on recycling and purifying lanthanide and actinide metals, which was funded through a grant from the National Science Foundation.

Hi Shannon. Thanks for taking the time to do this interview. To start, could you please share some information about yourself?

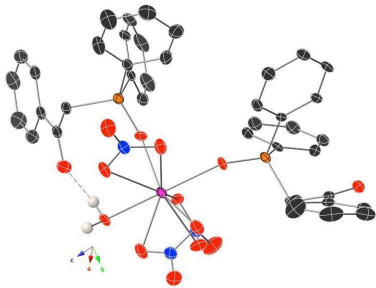
I am a professor in the Chemistry Department, and I've been working at GVSU for 15 years. My favorite part of this job is working with the students, both in the classroom and in the research lab. I also really appreciate the flexibility that being a professor offers.

You recently received a research grant from the National Science Foundation. Congratulations! Could you tell us a little more about it?



The three-year National Science Foundation (NSF) grant was funded through the chemistry division as part of the Research at Undergraduate Institutions (RUI) program. The grant is to support one area of my research program, which is trying to develop new ways to purify and recycle lanthanide and actinide metals. This grant represents a collaborative effort with my colleague Dr. Eric Werner at the University of Tampa.

The grant comes with funds to pay students for doing research throughout the school year as well as in the summer. As part of this, it also includes a stipend for one student from Grand Rapids Community College (GRCC) to work in my group each summer. Also included are funds for my students and me to travel to conferences to present our research results, funds to purchase chemicals and equipment for the lab, and a summer salary for me.



What exactly are rare earth elements and how are you using them in your research?

Rare earth elements are the 15 lanthanide metals—those elements found at the very bottom of the periodic table. As it turns out they are not rare at all, they are quite abundant in different places all over the earth. It's likely that everyone has a device or piece of equipment that contains a rare earth metal. A hybrid car battery contains lanthanum, a typical catalytic converter contains cerium, and many optical displays (such as those on a smart phone or computer) use yttrium, europium, and terbium to generate bright colors.

The problem we are trying to address with our research is two-fold:

(1) Although rare earth elements are present in ground ores across the planet, it is quite difficult to purify them away from other metals present in those mines.

(2) Current efforts to recycle these elements from materials and devices that have reached the end of their lifetime face the same challenges. Current methods for purifying these metals use (literally) tons and tons of kerosene to extract the target metal out of a solution of nitric acid. While the method works, it is energy-intensive and inefficient. Our work is aimed at making this process more efficient.

The extraction process works by having an organic compound (a molecule composed of mostly carbon, nitrogen, oxygen, and hydrogen atoms) in the kerosene, which binds to the target rare earth element which is dissolved in the nitric acid. Our group is preparing new organic compounds which, we propose, will bind to the target metals more strongly and selectively.



This sounds like an amazing learning opportunity for students. What are the anticipated outcomes and impact of your research?

The primary products of this work are the student researchers. We work closely in the research lab to push the project forward and expand the students' knowledge of organic and inorganic chemistry topics and techniques. We also work on soft skills such as writing and effectively presenting research results to others.

Hopefully the organic compounds that our research groups prepare will represent an improvement over the current method. Then we can move to test those compounds in systems that are like what is seen in industrial settings.

There is [more information on the website](#) about the research projects my group works.

Hello from Your New Editor and Spotlight Submissions

I would like to thank everyone for the warm welcome I received as I started my journey at GVSU and CLAS. As I settle in, one of the things I would like to do is learn more about the CLAS units and the best ways—both internally and externally—to share your stories. I am excited and curious about your work. Consider me both your salesperson and cheerleader.

I have been reviewing the publications that are produced by the Dean’s office, and in the upcoming months will be asking for your feedback on them. For this publication, my goal is to create a deeper understanding of CLAS—from the individual, to the unit, to the college.

I need your help! Tell me about everything—your events, your awards, your research, a funny joke—I’m open to hearing it all. The more I know, the better stories I can tell. You can email me at kruegekr@gvsu.edu, or stop by, or give me a call. If there are seasonal events or activities that I should be aware of, please share that as well.

I’m looking forward to meeting and working with you.

Kristen Krueger-Corrado
Director of Communications

Hello

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