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September 30, 2022

CURPA Diem / Physics and Astronomy Divisional Newsletter
A Publication of a Division of the Council on Undergraduate Research
Winter 2021

The Physics and Astronomy Division of the Council on Undergraduate Research provides networking opportunities, activities, and resources to assist physics and astronomy administrators, faculty members, students, practitioners, and others in advancing undergraduate research.

Chair: [Toni Sauncy](#) (Texas Lutheran University)

Newsletter Editor: [Richard Thompson](#) (Cabrini University)

View from the Chair

Hello, Y'all!

About one year. Around 365 days. Over 52 weeks since life began to drastically change for most of us. In the spring 2020 newsletter, we were still planning on an in-person gathering at Purdue for the 2020 Annual Business Meeting (ABM), which was eventually held virtually. A year ago, we all had grand ideas that we would muddle through the spring and then be "back to normal" in the fall. It has been a long year. It has been a year filled with heartbreak, anger, disappointment, and deaths of innocent people. This year has brought out the worst of the human experience and, in moments of light, showed the best of who we can be amid the coronavirus and the undeniable impact of hundreds of years of systemic racism in every part of the country. My hope is that we have learned to listen, acknowledge, and do the hard work required to incite change for the better. This unimaginable year of challenge has worn our patience thin while demanding that our creative energy be pushed to its maximum capacity so that we can continue to provide the best possible experience for our students. I am sure many of you, like me, have found this to be exhausting.

CURPA as a group has been largely quiet over the past months, as CURPA members scrambled to understand what a fall term would mean, and then moved into spring with little change in our ability to "get back to normal." For those in Texas, the spring 2021 term had just begun when extreme winter weather and a devastating failure of the infrastructure hit, leaving many of us to wonder, "What's next?" There is little energy left over from our "day jobs" to devote to our "extra" service activities. I hear you—I hear the quiet and understand. Last year, CURPA, as usual, was ripe with big and bold ideas. It is my hope that those great ideas for new and exciting things for CUR and CURPA are simply lying dormant until we can collectively gather the bandwidth to pursue work and chase goals that go beyond the goal of surviving unusual working conditions, budget cuts, and overall uncertainty about what the future holds for higher education. I have great confidence in this group and know that even in the quiet, you are out there making a positive impact in your own spheres of influence, no matter how convoluted the landscape is right now.

There are a few items I would like to call to your attention.

1. The division continues to receive applications and award funds to students to support their research efforts. The next deadline is April 9, 2021. [Get more details >>](#)
2. The CURPA Division Faculty Mentor Award was not awarded in 2020, and I would really like to receive some nominations this year and select an awardee or awardees. Please consider nominating a colleague or urging others to nominate. [Learn more >>](#)
3. The 2021 ABM for Councilors will be held virtually on June 17–18. More details will follow from the national office. Check your [communication settings](#) in the CUR Community, so you are up to date with the latest communications about the ABM. I hope to see the full cadre of CURPA Councilors there. I hope that you will bring big ideas, suggestions, and dreams so we can spend two days making headway toward what might be, even if we may be in a delayed action mode.
4. Be on the lookout for the spring 2021 election results that will be released in mid-March. We look forward to welcoming the new CURPA Councilors!

As many of us have moved to modified ways to carry out our research with students, I am anxious to hear your stories of what we have learned as a community. I know that it is through our shared experience that we will continue learning new things, finding better ways to engage our students, and maybe even keeping our wits about us. Please consider submitting an account to the newsletter and maybe even posting on the division's Facebook page.

Someday soon, may your labs be buzzing with fully operational equipment, your data terminals be filled with fantastic results, and your imaginations be inspired with all that is possible.

Toni

Toni Sauncy
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2019–2020 CURPA Chair
Texas Lutheran University

Plan to Attend NCUR 2021 - Virtually!

Due to the continuing effects of the COVID-19 pandemic, NCUR 2021 will be held in a virtual format on April 12–14, 2021. A draft agenda for the event is posted on the [NCUR website](#) along with an FAQ page with information on registration, presentation format guidelines, and costs. Stay tuned for more updates from CUR in the near future.

2021 Posters on the Hill

Engaging and personable students will discuss their research through an online modality to members of the public, funding agencies, and the US Congress! This year's Posters on the Hill event will be held online on April 27–28, 2021. We look forward to hearing about the fantastic research activities undertaken by students and their mentors and in supporting this important educational and professional opportunity.

The Posters on the Hill committee greatly appreciates the service of volunteers in reviewing abstract submissions as well as the research mentors who have guided students through their respective projects—an even more incredible feat during a global pandemic! More information will be available on the [website](#) as we approach this year's program.

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Making the Case for Undergraduate Research with Our Own Personal Stories

The effects of the pandemic will likely be long and far-reaching, and some aspects of our lives may never return to “normal.” Higher education institutions in particular will be grappling with larger questions about how online learning fits within a traditional college setting, diminishing enrollments, and tighter budgets. Online learning environments are abundant and improving every day—Udemy, LinkedIn Learning, and many other top-notch platforms offer online learning at a fraction of the price paid by students for “traditional” classes in college. Administrators will need to look within their campuses for solutions, and those of us within undergraduate research need to make the argument now that undergraduate research is one of the solutions. We have all seen firsthand the impact of undergraduate research on students and know the value it brings to higher education institutions; now we need to ensure those making the decisions about the future know this, too. The following are some points supporting this argument.

When I was pursuing a bachelor’s degree in physics, I loved the classwork and enjoyed the lectures, but I was always wondering how I could apply the knowledge I was gaining. The answer came when I noticed graduate students entering a physics lab. I knew then that I needed to do research and work in a lab to connect my knowledge of physics to the real world. I started asking my professors for permission to work as a volunteer in a lab. Unfortunately, none of my professors gave me permission to do lab work when I was an undergraduate. Unable to find an opportunity in physics, I turned my focus to the chemistry department. Initially I faced the same denials, until one professor mentioned needing help cleaning labware. I happily agreed, excited to be allowed in the lab, even though I knew I would only be watching the graduate students complete their research.

Being in the lab gave me room to grow as a student and allowed me to find more meaning in my classwork. In the few months that I cleaned labware, I became acquainted with graduate students; professors in departments of my interests; and, most important, a real research lab setting.

Doing research at an early age gives undergraduate students great confidence in pursuing the answers to their academic curiosities. They gain independence and critical thinking skills that aid them throughout their educational careers. The focus should not be teaching or lecturing students but rather giving them the tools they need to grow their knowledge themselves, however they see fit. The world is changing rapidly, and the way we need to engage student needs to adapt to those changes. Just 20 years ago, it would be very uncommon for an undergraduate student to be the author or coauthor of an article in a peer-reviewed journal. Now, many are participating and contributing to academic and professional articles. Undergraduate research benefits students in other ways as well—it looks good on a student’s resume, boosts the odds of finding a job, and can assist in choosing a robust graduate program.

With the nationwide campus enrollment rate decreasing, unique and diverse opportunities must be offered as ways to combat those sinking numbers. Offering undergraduate research on campuses will not only increase the overall knowledge base and skill sets of students but also provide a recruitment tool to encourage students to attend universities. Additionally, it can be a way to engage with donors and develop partnerships with companies and the community. The switch to virtual learning this past year has proven that students are dynamic, flexible, and independent learners who are more than capable of completing and benefiting from high-impact practices such as undergraduate research. Programs such as undergraduate research need to be protected and supported consistently as they offer many important benefits to the student body and institutions as a whole.

We also should be making efforts to incorporate high school students into research and lab work. High school students are incredibly capable of learning and developing new skill sets and are often motivated and excited to complete work that many advanced researchers do not have the time or motivation to finish. One

of my students learned how to automate a box furnace with some Python coding and an Arduino in just a few days, whereas I had been working on this task for a few months.

Regarding my own field, physics, most of the great breakthroughs and theories came from young physicists. Think of Einstein, Newton, de Broglie—they made most of their contributions when they were in their early twenties. Why were they able to do that? Perhaps because they had out-of-the-box ideas, unencumbered by the structure, discipline and routine of classwork. When we deprive students of any academic status the opportunity to complete undergraduate research, we are depriving ourselves of developing knowledge, advancing techniques, and spreading information. Undergraduate students may have less of a sense of discipline for their work in research when they are starting out, which is beneficial for the creation and development of unique, diverse, and innovative ideas.

Let our students excel by involving them in undergraduate research—whether it is in art, biology, chemistry, comparative religion, literature, physics, sociology, or any other academic field. It is a mutually beneficial experience for the students, the researchers, and the institution as a whole.

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**Check out the Winter 2020
*Scholarship and Practice of
Undergraduate Research:*
"Nontraditional Approaches to
Undergraduate Research"**

CURPA News Deadline

CURPA News comes out three times per year and we welcome your contributions! Please send your submissions, comments, achievements, opportunities, etc. to **Rick Thompson** (rt533@cabrini.edu). The deadline for the spring 2021 issue is April 16, 2021.

[Read the SPUR Issues](#)

Opportunities

Have a job opening or program that you would like to advertise here? Please send the information to rt533@cabrini.edu for inclusion in the next issue of *CURPA Diem*. The deadline for the winter 2021 issue is January 22, 2021.

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