

# wisconsin engineer

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NUMBER 1

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# ENGINEERING COMMUNITIES AT UNIVERCITY

UNIVERCITY ALLIANCE, A PROGRAM THAT ALLOWS COMMUNITIES ACROSS WISCONSIN TO CONNECT WITH FACULTY AND STUDENTS FROM A WIDE RANGE OF DISCIPLINES AT UW-MADISON, EXEMPLIFIES THE INCREASING IMPORTANCE OF BRIDGING THE GAP BETWEEN SOCIAL ISSUES AND ENGINEERING.

When people think about engineering, often the first things that come to mind are exceedingly technical: building things made of metal and concrete, increasing efficiency and knowing math and science. In fact, the potential for a human or social aspect of engineering might not immediately be apparent. Yet, in Madison, the UniverCity Alliance, or UCA, is actively making strides to bridge the gap between engineering and the many social issues facing our communities.

According to UCA program materials, the organization can best be summed up as “a network of leaders across UW-Madison’s campus dedicated to ensuring cities are healthy, equitable, and sustainable.” Information provided by UCA explains that within the organization is a three-year program called UniverCity Year, or UCY, which “connects local governments and communities across Wisconsin with UW-Madison faculty, students and research to work toward locally identified goals.” UCY has been active since 2015 and has partnered with 14 communities, and in 2022, six additional communities will start working with UCY.

The UCY program is an opportunity for communities to address local challenges while enlisting help from students in many disciplines at UW-Madison including engineering, and there is an exciting process that moves these projects forward. After communities have applied to the program, staff at UniverCity help create projects to be set up with UW-Madison faculty or classes at both the graduate and undergraduate levels. Eventually, after students have worked on the project for a semester, they share a final report with the community.

According to Gavin Luter, the managing director at UCA, the UCY program has seen tremendous growth in the last six years. Luter explains, “We are completing somewhere around 50 to 60 projects per

year, which has grown from the original 30 to 35.” Additionally, the program has been gaining recognition for the work completed in its many projects, and in 2019, a UW-Madison Civil and Environmental Engineering project received recognition from the National Council of Examiners for Engineering and Surveying.

As UCA has expanded, they’ve worked on clarity in defining projects, and Luter explains, “over the years, we have developed a more formalized process to help communities identify what they want to work on. Sometimes people come to us with hazy, high-level topics, and we need to help them get clarity on what would be helpful to advance their long-term goals.” Luter discusses the many projects being worked on, noting, “We currently have several classes working on the issue of childcare, an Agriculture and an Applied Economics course on cooperatives, a Management and Human Resources project working on childcare worker compensation and a La Follette School of Public Affairs capstone class looking at policy alternatives for local governments looking to address childcare access and affordability. We’re also looking to create a scholarship program, which would involve individual students applying directly to work on community-identified projects.”

Abigail Becker, communications and outreach specialist at UCA, brought up another recent partnership: the Juda School District in Green County, which worked with UCA from 2017-2020. One project was the development of a renewable energy system that offset the school district’s energy expenses by 25%, and Becker noted that this

WRITTEN BY  
SARAH GEROVAC

experience also fostered relationships between engineering students and younger members of the school district.

Important to note is that many of the topics that UCY projects focus on aren't inherently engineering-focused. Evidently, such projects, while clearly having an impact on the communities they partner with, are equally as impactful for the students who are working on them. They allow UW-Madison engineers to develop critical skills such as empathy and leadership that have the potential to be overlooked in a curriculum focused on technical and analytical skills. In conjunction with this theme, Luter explained, "I really enjoyed helping Adams County foster optimism in its future – a community who doesn't know what their future is going to look like and us being able to help them. It gives me so much satisfaction to know that we are a place that communities can turn to when they need somebody to help kick around new ideas and think about the future."

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A current undergraduate course, 'InterEGR 303: Applied Leadership Competencies in Engineering,' taught by Paige LaPoint, is taken by UW-Madison engineering students from freshmen to graduating seniors. LaPoint has witnessed firsthand the impact that projects taken on by her class have had on the community, explaining, "The relationships between communities and students in these instances have been impactful for both parties. Students are able to practice teamwork, collaboration, and practice executing technical and soft-skills, communities are able to make progress on projects that are in need of attention."

Diving further into connections that UCY focuses on, LaPoint explains why this topic is important: "the field of engineering is inherently people based-its focus is on solving social issues for communities and individuals. As such, working with partners in our state not only assists us in striving to meet the goals of the "Wisconsin Idea, but it also allows students to practice the very work that they will be engaging in upon graduation. Society and engineering are inherently tied together; working with UCA allows us to bring important social issues and concerns into the classroom."

Having a program like UCY that allows students at UW-Madison to take classes that focus on personal growth as well as technical growth is essential to building a new generation of empathetic, self-aware engineers who are aware that to do things the right way, they need a level of understanding that extends beyond the technical realm. UCY will continue opening up opportunities for students and communities alike, as maintaining a focus on the humans and societies being affected by engineering will only become more important in the future.

