CACHE News
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NSF REU Site Program - Summer Academy in Sustainable Manufacturing at Wayne State University

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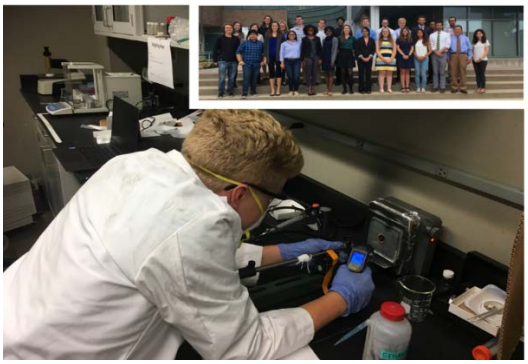
Wayne State's NSF supported Summer Academy in Sustainable Manufacturing offers unique summer research experiences in the critical field of sustainable manufacturing to outstanding undergraduate students nationwide. The site resides in the Southeastern Michigan Manufacturing Community and challenges participants to an intensive ten-week summer research and professional development experience. Program activities culminate in an end-of-summer poster symposium and a final undergraduate research report.

The Academy has brought together more than 10 faculty researchers at Wayne State University with a common interest in sustainability and manufacturing. Student undergraduate research projects cross-cut critical areas in sustainable manufacturing. These include: (1) nanocoating and lightweight materials and manufacturing, (2) energy storage materials, batteries, and inversion devices, (3) remanufacturing and manufacturing sustainability assessment, (4) computer simulation and tool development, and (5) chemical-energy-water nexus. The Academy projects align with innovative advanced manufacturing areas such as digital manufacturing, lightweight materials, collaborative robotics, Internet of Things, smart manufacturing, and more. Program outcomes have already contributed to the broader research knowledge through presentations at the Council of Undergraduate Research REU symposium, 2016 and 2017 International Conference on Sustainability Science and Engineering (ICOSSE) in China and Spain, respectively, the 2016 and 2017 AIChE Annual National Meetings, and the American Society for Engineering Education Annual conference. Alumni of the program have had considerable success at ICOSSE 2016 and

2017 with a total of five National Science Foundation travel awards and first places finishes in both the 2016 and 2017 ICOSSE undergraduate student poster competitions.



Program survey feedback has indicated that the Academy has been influential on participant's decision to pursue graduate studies. In addition, all students have been satisfied with the experience. A follow-up survey 6-9 months after the first year of the program revealed that two participants plan to pursue a Ph.D., two plan to pursue a Masters, two plan to work prior to graduate school, and one does not plan to pursue graduate study. The survey takers responded that the summer experience was fantastic, with another indicating that it was an excellent way to learn about science. Testimonies from Academy alumni include, "I believe the project I worked on was perfect. It challenged me yet gave me time to figure things out before the end of the program" and "I loved all of them!" in regards to the cultural activities.

The Summer Academy in Sustainable Manufacturing has received a large amount of interest from undergraduate students across the nation. Our 2016 and 2017 programs received over 200 applications from a diverse set of undergraduate students in about 20 academic disciplines of more than 110 institutions in the nation; more than 30% of the applicants were chemical engineering students. We look forward to our 2018 program and inviting an outstanding group of 10 undergraduate students from a diverse set of engineering and science disciplines. The program website (https://advancedmaterials.wayne.edu/summer-academy) provides more detailed information.