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News

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Stevens Wins NSF Nanotechnology Undergraduate Education Grant

Nanotechnology is poised to impact industries much as the microscale revolution transformed manufacturing in the 1970s, and college students are eager to gain the upper hand in this emerging field. With National Science Foundation (NSF) support, Stevens Institute of Technology is providing undergraduates with forward-looking experience on nanotechnology research and applications. A multi-disciplinary faculty team, led by [Dr. Eui-Hyeok](https://web.stevens.edu/facultyprofile/?id=120) (E.H.) Yang, has won an NSF Nanotechnology Undergraduate Education (NUE) grant that will open up the nanoscale to a new generation of students.

"Nanotechnology is applying science and engineering approaches at the molecular and atomic scales to develop new materials and devices of technological value, often exploiting phenomena that can be unique at these size scales," says [Dr. Keith Sheppard](https://web.stevens.edu/facultyprofile/?id=11), a Co-PI on the NSF grant and Associate Dean of the Schaefer School of Engineering and Science. "This award allows us to bring awareness of nanotechnology to a wide range of students."

The Stevens program, dubbed NUE-NEXUS, standing for NUE: Nanotechnology EXposure for Undergraduate Students, seeks to create a nexus between nanotechnology and undergraduate engineering education to expand understanding of nanotechnology and its applications to a broad undergraduate engineering student population.

At the heart of NUE-NEXUS are two new nanotechnology courses, NANO 300: Introduction to Nanoscale Science and Engineering and NANO 325: Introduction to Nanofabrication and Characterization. By appearing early in the curriculum, these courses will serve a dual purpose, not only educating a broad student population in nanoscience and nanotechnology, but also serving as a foundation for students choosing to pursue an undergraduate nanotechnology research track.

The inclusion of a research track is based on studies indicating that undergraduate research opportunities help clarify students' interest in research and thus can encourage students to pursue nanotechnology as a career. The research track will serve to increase the pipeline of students aiming for graduate programs, and enhance their opportunities with a strong background in hands-on nanoscale experience.

This NSF NUE grant leverages Stevens [Nanotechnology Graduate Program](http://www.stevens.edu/nano/), which provides an infrastructure for interdisciplinary learning, and ongoing K-12 educational programs for developing engaging curricula incorporating nanotechnology for younger students. In addition to Dr. Yang and Dr. Sheppard, the other Co-PIs at Stevens are highly experienced in both nanotechnology research and engineering curriculum development. They are [Dr. Ronald Besser](https://web.stevens.edu/facultyprofile/?id=1), Professor of [Chemical Engineering](/ses/cems/); [Dr. Chang-Hwan Choi](https://web.stevens.edu/facultyprofile/?id=310), Assistant Professor of [Mechanical Engineering](/ses/me/); and [Dr. Frank Fisher](https://web.stevens.edu/facultyprofile/?id=78), Associate

Professor of Mechanical Engineering and Co-Director of the Nanotechnology Graduate Program.

NUE is an aggressive initiative of the NSF to support nanoscale science, engineering, and technology in America through interdisciplinary approaches in undergraduate engineering education. The focus of the current round of funding awards is towards nanoscale engineering education with relevance to devices and systems, as well as the ethical, economical, and environmental issues relevant to nanotechnology.

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1 Castle Point Terrace

Hoboken, NJ 07030

GET IN TOUCH

[201.216.5000](tel:201.216.5000) (<tel:+12012165000>)

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