



The OWL

A PUBLICATION OF THE SCHOOL OF ENGINEERING

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Clare Boothe Luce professor named

Fairfield welcomes a promising new professor this fall, thanks to a \$404,439 grant from the Henry Luce Foundation's Clare Boothe Luce Program. Dr. Shanon Reckinger, who will receive her Ph.D. from the University of Colorado at Boulder in August, will join the Mechanical Engineering faculty, teaching fluid dynamics and numerical methods at both the undergraduate and graduate levels.



Dr. Shanon Reckinger

"For my undergrad education, I attended University of St. Thomas in the Twin Cities," Dr. Reckinger said. "It is a school very similar to Fairfield in many ways. It is where I learned to appreciate the liberal arts education. I was able to experience first hand the benefits of small class size, hands-on learning, and a university's commitment to excellent teaching. I am honored to be part of the faculty at Fairfield and excited to contribute to our future generations' education."

The grant that made Dr. Reckinger's position possible comes at a time when the need for more young people carving out careers in the sciences and engineering – especially women – has become more urgent in the United States. It was specifically earmarked for Mechanical Engineering, the largest department in the School. "Fairfield is

poised to provide a supportive environment where the talents of the new scholar will be nurtured," said University President Jeffrey P. von Arx, S.J. "We envision the Clare Boothe Luce Professor excelling in her professional development here, inspiring students along the way."

Dr. Reckinger has been a co-instructor and teaching assistant at the University of Colorado, where she also earned her M.S.

in Mechanical Engineering. Her professional research experience includes work as a research assistant at the Los Alamos National Research Lab in New Mexico. Her research focus is developing numerical methods for computational fluid dynamics and her thesis focused on improving numerical methods used in ocean circulation models, work she hopes to continue at Fairfield. She also hopes to branch out to some related experimental and observational work.

The professorship is a tenure-track position, and Dr. Reckinger will enter at the rank of assistant professor. The grant will be distributed over five years, supplemented with funds from Fairfield, beginning this fall. The University is committed to permanently sustaining this professorship after the initial grant funding is completed.

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Gifts & Grants

- Fairfield University received renewed funding totaling \$70,000 from the Earl W. and Hildagund A. Brinkman Private Charitable Foundation for five different projects across campus, including \$50,000 for laboratory equipment in the School of Engineering.

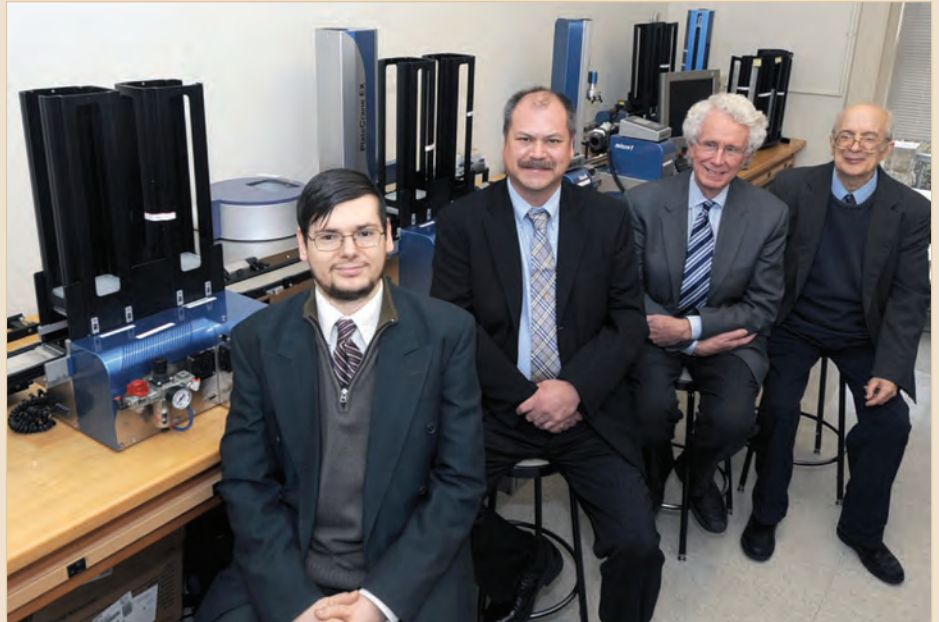
Funding allowed for the purchase of student-accessible, hands-on laboratory apparatus to introduce engineering concepts and phenomenon to engineering students. Dr. Jack Beal, dean, was the project director.

- A \$4,500 award from the National Space Grant Foundation and a \$2,000 grant from Amazon enabled Fairfield students to work on pilot programs in a “cloud computing” environment, in which NASA computing services can be accessed around the clock. Students learning new technology work together with industry experts in real time anywhere, and participate in research projects such as NASA’s XDM database project. Dr. Wook-Sung Yoo, professor and chair of software engineering, directs the project.



- Dr. Yoo is also the project director for a \$35,520 grant from The Voice LLC to support two paid internships for Fairfield graduate students in web development and programming.

SOE receives donated tools



Christian Craciun, SOE laboratory engineer, Boehringer representative Anthony Kronkaitis, SOE Dean Jack Beal, and Dr. Paul Botosani, director of laboratories.

The School has received a gift of nearly \$700,000 worth of robotic tools enabling students to gain valuable, hands-on automation skills applicable to numerous industries, including aerospace, biomedical development, and manufacturing.

Ridgefield-based Boehringer Ingelheim Pharmaceuticals, Inc., part of the Boehringer Ingelheim group of companies, the world’s largest privately held pharmaceutical company, donated the equipment. For 125 years this family-owned business has been committed to the research and development of innovative medicines that help improve the lives of patients and their families.

Dr. Jack Beal, dean, said the tools are providing learning opportunities and lab experiences for undergraduates and graduate students in the Automated Manufacturing Engineering program. “Students will learn operational tech-

niques to utilize these robotic tools for a wide variety of laboratory processes such as those found in pharmaceutical development industries,” he said. “You would be surprised to learn how many processes in industry are still done by hand, so robotics are the key to the future growth and increased productivity of many industries. We are grateful to Boehringer Ingelheim for this generous gift.”

Although the robotic handling systems are designed for use in manipulating pharmaceutical materials, Fairfield students will learn how to manipulate them and troubleshoot any glitches in their operation. From there, students can then apply that knowledge to mastering robotic tools and other engineering challenges.

“All of this is computer controlled,” Dr. Beal said. “The trick here is to get it to all work together as an integrated system.”

Congratulations, Class of 2011!

Fairfield celebrated its 61st Commencement on May 22, with the sun struggling to make an appearance over separate undergraduate and graduate ceremonies on Bellarmine Lawn. The School of Engineering awarded 39 master's degrees, 22 bachelor's degrees, and two associates degrees during the 2011-12 academic year and many of those recipients marched with their class in May.

Undergraduates heard from this year's Commencement speaker, the Honorable Maryanne Trump Barry, a highly influential judge on the U.S. Court of Appeals Third Circuit, which covers Pennsylvania, New Jersey, Delaware, and the U.S. Virgin Islands. Barry told the Class of 2011 that there is no substitute for "good, old-fashioned hard work."

Noting the asset of having the "good Lord" in her life, she told the graduates not to be deterred by any fears or insecurities that they might harbor, as she has not been immune to feeling scared many times in her life. "You will never know what you can do unless and until you try," she said. "You will find with every little success, the fears and the insecurities will gradually

fade away... But even if you don't succeed in reaching a particular goal, you grow from the trying. And then you try again."

The Graduate Commencement speaker, Navy Rear Admiral Brian Monahan '82, who is the attending physician for the United States Congress and United States Supreme Court, explained that receiving a Jesuit education also means that you are called to be men and women for others. "What that means is your academic achievement brings with it a responsibility to examine social systems critically, and to become directly involved with those who are underprivileged and underserved," he said.

Maryanne Trump Barry, the 2011 honorary degree recipient and Commencement speaker



Garrick Fearon, of Jamaica, and David De La Rosa, of Mexico, sit among the Management of Technology graduates.



William Earls '11 leads a group of fellow engineering graduates across the lawn.

SOE promotes innovation

About 70 students, faculty, and industry professionals converged on campus in February for the School of Engineering's "Innovation," a lively discussion with top Sikorsky Aircraft experts on a vital topic some feel may fuel a national economic upturn.



Dr. Shahrokh Etemad



Chris Van Buiten

Chris Van Buiten, the company's director of Innovation, and Jim Kagdis, M.A.'82, manager of Advanced Programs in the research and development group, were a perfect fit as keynote speakers, according to Christian Ford '12, a mechanical engineering major and one of the event organizers. Their topic also coincided with President Obama's State of the Union address, in which he considered innovation as key to reviving the economy.

Van Buiten discussed how large established companies can leverage their size and capacity without getting paralyzed. Different case studies showed how a culture of innovation could yield game-changing technology, product, process, and business improvement. The importance of identifying and addressing problems, instead of keeping them secret, was mentioned as an important technology operation practice. Kagdis described a range of technology topics from the X2 speed helicopter and the fully electric helicopter to the technique of rapid prototyping. The speakers discussed the financial perspective on the value of innovation as well. Sikorsky hopes to sustain financial stability through innovation and a belief in taking technical and business risks, but never safety and ethical risks, Van Buiten said.

"Educating well-rounded students at Fairfield by teaching both advanced technology and design safety and ethics makes our

students ready for these successful innovative environments and applications," said Dr. Shahrokh Etemad, chair and associate professor of mechanical engineering and one of the organizers.

Professionals came from across the state and over the border in New York to attend the event, which was also a prime networking opportunity for students and faculty members.

"I was pleased with the variety of fields Mr. Van Buiten reached out to during the presentation," said Ford. "Engineering shouldn't focus purely on the mathematics; it should be a balance including business management, strict planning, moral standards, and absolute safety for all."

The American Society of Mechanical Engineers, ASME-Fairfield University, in collaboration with the ASME-Fairfield and ASME-New Haven chapters, Society of Manufacturing Engineers (SME), Inventors Association of Connecticut (IACT), and the Engineering Student Society (ESS) organized the meeting. A DVD copy of the presentation will be available at the DiMenna-Nyselius Library.

Mechanical Engineering students don hard hats for a tour of the power generation gas turbine facility Bridgeport Energy LLC in April.



Christina Klecker '10

Many of Fairfield's engineering graduates take their degrees and dive into working in aerospace, manufacturing, or technology.

Not Christina Klecker '10. She headed to Africa. There, the 22-year old has spent the first seven months of 2011 using her mechanical engineering degree to improve the ailing water collection and purification systems in Tanzania.

"I want to incorporate my education and background in engineering, because that is a valuable resource in the world," said Klecker, who won a Rotary Club scholarship for her Tanzania trip. "Fairfield has had a major influence on my decisions which led to this trip."

For the New Fairfield, Conn. native, the ultimate goal is to provide sustainable water availability to rural communities suffering from drought and plagued by disease from unclean water sources. Klecker said significant organizations are at work in Tanzania, installing expensive water systems. But there's a need that is not being met.

That is where she sees where she can make a difference.

"They do not include the people in the plans," said Klecker, who minored in mathematics and physics. "Once the system



Christina Klecker '10 hops a ride in Tanzania.

needs repairs, the people realized that no one in the town was trained to fix the complicated equipment. That is why I intend to work with community members to solve the problem."

Klecker, who also studied Swahili and African civilizations and taught English through the University of Dar es Salaam in Tanzania's largest city, is working to build bridges of communication with residents, educating them how to operate, service, and repair the water systems. In her spare

time, she traveled throughout the country, enjoying safaris on the Serengeti and a trek up Mt. Kilimanjaro. She chronicled her adventures in a blog (<http://ckleckerinafrica.blogspot.com>) that garnered fans from Singapore to Germany to Cameroon.

From a young age, Klecker remembers enjoying helping people – at her church, the local library, and the New Fairfield Volunteer Fire Department where she was an EMT and exterior firefighter. At Fairfield, she founded a campus Rotaract Club, raising funds for cancer research and Haiti, and took service trips to Belize and the Pine Ridge Reservation in South Dakota. "The exciting part about these experiences was not doing something for the people, but working with them to improve their livelihood," said Klecker. "I knew this was only the beginning of a lifetime of service work."

Professor named *continued from page 1*

News of the award comes in the wake of the School of Engineering – in particular its program in Mechanical Engineering – having enjoyed an increase in the number of women graduates. In 2010, the School awarded 25 B.S. degrees, of which 28 percent were awarded to women, up from 14 percent in 2006. Simultaneously, the School awarded 55 master's degrees, of which 20 percent were awarded to women.

"These Fairfield graduation rates are the opposite of national trends which indicate the percentage of women graduates in engineering is declining," said Dr. Jack Beal, dean.

It is key to emphasize, Dr. Beal said, that the mission of Fairfield and the Clare Boothe Luce Program are complementary. In Clare Boothe Luce's bequest establishing this program, she sought "to encourage women to enter, study, graduate, and teach" in science, mathematics, and engineering. The 21-year-old program has become the single most significant source of private support for women in those fields.

Clare Boothe Luce, the widow of Henry R. Luce, was a playwright, journalist, U.S. ambassador to Italy, and the first woman elected to Congress from Connecticut.

Hermalyn returns, Shelton students present

On May 17, the School and the NASA Connecticut Space Grant College Consortium co-hosted an event honoring Shelton High School (SHS) students whose experiment was selected to fly on the historic last mission of the Shuttle Endeavour. Brendan Hermalyn '07, who was just days away from collecting his Ph.D. from Brown University, delivered a spirited discussion of a research project he worked on that led to the discovery of water on the moon.

Dr. Ryan Munden and senior Andrew Grandin '11 also unveiled the NASA-sponsored electric motorcycle they helped developed as a senior project.

The festivities featured a presentation from five Shelton High School seniors who secured an experiment slot on the shuttle's last flight, which launched the day before their talk. The University is a member of the NASA Connecticut Space Grant College Consortium, which funded the project, as well as faculty research by Fairfield professors, said Dr. Bill Taylor, associate dean and the Connecticut Space Grant campus director. The consortium has funded Dr. Munden's research on solar energy, Dr. Wook-Sung Yoo's work on software review technology, and Dr. Amalia Rusu's project "Rapid Simulation Environment for Rotorcrafts."

Dr. Taylor and others were pleased to see Hermalyn, who majored in physics and music while at Fairfield. While pursuing a master's degree in mathematics at Fairfield, Hermalyn and fellow students Jessica Kurose, Mike Zafetti, and John Stupak took part with top science students nationwide in NASA's "Microgravity University" program. Joining students from Ivy League schools and large research universities, the Fairfield team flew aboard a research jet based at the Johnson Space Center in Texas, using the weightlessness environment produced onboard to conduct an experiment, "Splashless in Space."

Walking in his footsteps, Shelton students Leann Misencik, Kayla Russo, Jason Schnipes, Omar Sobh, and James Szabo, with their advisor Mary Clark, developed an experiment entitled, "Development of Prokaryotic Cell Walls in Microgravity." The purpose of the experiment is to observe the effect of microgravity on the development and integrity of a cell wall. The group will study the differences of bacteria grown in the microgravity environment aboard the shuttle, and bacteria grown on Earth, in a controlled environment with standard gravity.



Dr. Ryan Munden sits on the electric-powered motorcycle that students (l-r) Andrew Grandin, Marco Hernandez, and Luis Tintin improved for their senior project.



Shelton High School students Leann Misencik, Jason Schnipes, James Szabo, and Omar Sobh watch as Brendan Hermalyn '07 explains his work on water on the moon. Dr. Bill Taylor, associate dean, right, looks on.



Andrew Grandin works on the motorcycle parts back in the shop.

Future scientists lauded at awards ceremony

As fewer young Americans seek careers in math and science, Fairfield University's School of Engineering and Sikorsky Aircraft Corp. continue to team up to encourage kids to pursue those paths.

Nominated by their respective principals and teachers, 30 juniors from public, private, and Catholic high schools in Fairfield and New Haven counties were singled out for their academic achievements. "We hope that in some way we encourage you to pursue studying engineering, technology and mathematics in college," said Dr. Jack Beal, dean of the School of Engineering, which organized the 15th Annual Excellence in Mathematics and Science Awards.

The honorees this year featured a large group of young women who mingled with the growing ranks of women faculty in the sciences, including Dr. Shelley Phelan, professor of biology, and Dr. Amalia Rusu, assistant professor of software engineering.

Many students professed an interest in pursuing careers in technology and engineering, noting a family member or teacher had inspired them to do so. For Clark Shurtleff, 16, an Amity Regional Senior High School student, a commitment to the sciences is in his genes. "In my family, we have an engineer, a nuclear physicist, a software engineer and my sister is a chemistry major," he said. "I want to be an engineer because there are a lot of opportunities now and cool stuff going on. A great teacher can show you the practical applications."

Lauren Loomer '09, described her days at Fairfield as a double major in mechanical engineering and math, complete with an internship in the helicopter blades department at Sikorsky. "I remember being a freshman and finding my friend's engineering textbooks really interesting," recalled the San Diego native, now a Sikorsky Aircraft engineer. "I became fascinated by all there was to learn."

Susan Hitchcock, manager of communications for Sikorsky Aircraft, told students of the fulfilling careers that await budding engineers. "Follow your passion and it will drive you," she urged them.



Susan Hitchcock, Sikorsky's manager of communications, hands Clark Shurtleff his award at the Kelley Center ceremony.

Inventors converge on campus

On May 26, the Inventors' Association of Connecticut (IACT) presented a talk featuring entrepreneur Mark Noonan, who shared his stories of inventing such products as the "Leaf Loader" and the "Snowwolf," illustrating the challenges of building a business from concept inception to the global marketplace.

Noonan, of New Canaan, Conn., is president and founder of Structured Solutions LLC (soon to be renamed Nootools). He has built a product concept portfolio of more than 50 products, and offered tips for those committed to product development and marketing. He touched on the topics of licensing versus building a brand and business, said Dr. Doug Lyon, co-director of Fairfield's graduate program in electrical and computer engineering and president of the IACT.

Noonan's first major success was the "Wovel," a wheeled snow shovel now sold globally under its new brand name, "Snowwolf." His most recent product is the "Leaf Loader," which gained market entry only 18 months from inception. He earned a B.A. in economics from Duke University and an MBA in marketing and finance from the University of Pennsylvania's Wharton School of Business.

The events of the IACT are an avenue for bringing together not only tinkerers and inventors, but people working in marketing, venture capitalists, intellectual property attorneys, and entrepreneurs, among others. Open to the public, meetings of this not-for-profit organization are co-hosted by the School of Engineering in the DiMenna-Nyselius Library. For more information and contact info, see <http://www.inventus.org/>.

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Letter from the Dean



At the end of my first year as Dean of the School of Engineering, I look back and recount a number of really significant highlight items. Needless to say that I am pleased to recount these items, but I sincerely believe that the SOE made a number of significant advances in the past year.

Probably the most significant for me personally for 2010-2011 was that we graduated 25 undergraduate majors with the Bachelor of Science degree and we also graduated 39 graduate students with the Master of Science degree. It was my real pleasure to stand on the podium last May and watch a number of these students receive their degree from President von Arx. I also have had the pleasure of having a number of these students in my classes in the past 3 or 4 years. It is very rewarding to see how these students have grown and matured and blossomed, and we all here in the SOE wish them the very best as they go out into the world of engineering.

At the other end of the time line for our students, it was great to welcome 32 new first-year undergraduate students to the

School last fall 2010. I had a number of these students in my class last fall and got to know them better. We had a time management workshop for all first-year students last fall to help them settle in by giving them some tools to adapt to the college culture. I look forward to following their progress in the months and years to come until their graduation dates.

An external measure of the recognition of the School's advancement was the awarding of a prestigious Clare Boothe Luce Professorship to Fairfield University. With this award, we were able to conduct a national search of candidates and ultimately to hire an outstanding female scholar in Mechanical Engineering. Dr. Shanon Reckinger from the University of Colorado at Boulder will be joining us this fall.

A further recognition of our growing stature was the awarding of a number of external grants to the School and to individual faculty members. These awards help us to accelerate our advancement and growth to the advantage of our students.

I want to thank all of those at Fairfield – particularly those in the School of Engineering – for their help and support in making all of this happen. I look forward to new and exciting activities in the coming year.