

New Stuart Academy Seeks to “Ripple the Pond”



ACADEMY
FOR FUTURE LEADERS
IN SCIENCE & TECHNOLOGY

IIT STUART CENTER FOR STRATEGIC COMPETITIVENESS

According to the Cooperative Institutional Research Program Freshman Survey, the environment is one of the topics 18-year-olds care about the most—even though they may not know why.

The new Academy for Future Leaders in Science and Technology will help young adults “connect the dots between their emotional passion for the environment and how that translates into careers,” says Tom Anderson, associate dean of Stuart School of Business and co-director of the academy.

Launched on June 15, the Academy for Future Leaders is an initiative of Stuart’s Center for Strategic Competitiveness. The lead sponsor of the project, the Toyota U.S.A. Foundation, awarded Stuart \$500,000—the largest gift in the school’s history—to develop the academy. Alumnus Donald Esmond (BE ’66), senior vice president of automotive operations for Toyota Motor Sales, U.S.A., played a key role in facilitating the gift.

With its first session taking place this summer, the academy will teach high school students ages 16–18 the importance of the environment, career development, and the opportunities that a college education affords. During the nine-week program, students will attend morning courses at Stuart on such topics as sustainability, science, engineering,

and environmental management. In the afternoons, they will work at paid professional internships at Chicago-area businesses. Through a partnership with Dell and Microsoft, each student will be given a laptop along with associated software to support their continuing education through college. Students will receive long-term mentorship through an Academy Alumni Network.

“We expect that this will be a real confidence booster for the participants, who will be shoulder to shoulder with professors and college students,” says Marie Vanderford, Stuart program administrator and academy co-director.

The 25 students in the first cohort, nominated by their guidance counselors or science teachers, will come from seven partner Chicago public and private schools ranging from traditionally high-performing to more challenged schools. Up to 60 percent of the students will come from lower socioeconomic backgrounds and all will be primarily African American or Hispanic, with representation from both genders and with all students in good academic standing.

Anderson and Vanderford note the academy will address a number of issues—diversity, education, the environment, and workforce development—that are relevant to Stuart’s and IIT’s missions, as well as to the country’s needs.

FollowUP

Updates on the people and places previously covered in *IIT Magazine*

“Many Voices, One Vision” Winter 2009

On May 28, IIT senior administration will present its final version of *Many Voices, One Vision: A Strategic Plan for IIT 2010–2014* for approval by the Board of Trustees. At campus-wide meetings held in February, President John Anderson and Provost Alan Cramb presented the progress of the plan to date. All faculty and staff were invited and encouraged to offer feedback.

FAST FORWARD

The upcoming fall 2009 issue of *IIT Magazine* will feature expanded coverage of the *Many Voices, One Vision* plan. Look for articles about the academic programs, new initiatives, and ambitious goals that will guide IIT in the next five years.

“More Voices of the Holocaust Will Be Heard Through Grant” Winter 2009

The Illinois Holocaust Museum & Education Center in Skokie celebrated its grand opening on April 19 at a public event that featured former President Bill Clinton as keynote speaker. Clinton was joined by Illinois Governor Pat Quinn, Nobel Peace Prize Laureate Elie Wiesel, foreign dignitaries, Holocaust survivors, and members of the public. Former Secretary of State General Colin Powell delivered the keynote address at the museum’s Inaugural Gala, held on April 2.

The museum is dedicated to preserving the memories of those lost in the Holocaust and teaching current generations about the need to fight hatred, indifference, and genocide in today’s world. Materials from IIT’s Voices of the Holocaust project are on permanent loan to the new museum.



campus

“All data indicate America is producing an insufficient number of college graduates—period. We need to grow that workforce,” Anderson says. “Half of the jobs that college grads get today didn’t exist when they were freshmen, and green jobs will be evolving in the next decade. If you look at the new presidential administration, a focus is on environmental issues. The academy very much aligns with where our country is going.”

The defined metrics for the academy’s success include the percent of participants that graduate high school and the percent that earn a college degree; 100 percent and 95 percent are anticipated, respectively. The number of students that go on to pursue careers related to environmental management and sustainability, whether in engineering, science, or business, will also be tracked.

“Our goal is to take students at the middle of the class and move them up,” Anderson says.

“We are looking for this to be a ripple on the pond,” Vanderford adds. “These students will go back to their schools and share their experiences, which will have an impact on their peers.”

● www.stuart.iit.edu/csc

Undergraduate Engineering to Benefit from Two Awards

Two recent gifts to IIT will provide new support to both undergraduate engineering and entrepreneurship initiatives at the university.

- **The Kern Family Foundation** awarded IIT a five-year, \$1,322,500 grant to support the Kern Innovation and Entrepreneurship Academy (KIEA) for undergraduate engineering students. The KIEA director is David Pistrui, Coleman Foundation Chair in Entrepreneurship.
- **Robert W. Kerney** (FPSE '42, EE '46, M.S. '48) made a \$100,000 commitment over four years to support the Robert W. Kerney Expendable Scholarship Fund. Kerney’s gift provides four years of tuition for two engineering students participating in the Collens Scholars Program. The Collens Scholars Program provides tuition assistance for Chicago Public School students whose families would not otherwise have the resources to send them to college.

SNIFFING OUT ODORS

The Stickney Water Reclamation Plant is the largest facility of its kind in the world. A team from IIT’s Department of Civil, Architectural, and Environmental Engineering (CAEE) is investigating strategies to improve the air quality for plant employees and community residents by studying the sources of odors from wastewater treatment operations.

“We are looking at the treatment practices and verifying the odor-monitoring program—what control systems are in place and perhaps recommending more optimized control systems,” explains Krishna Pagilla, professor and lead



investigator of the \$794,200 project awarded recently by the Metropolitan Water Reclamation District of Greater Chicago. One of seven water reclamation plants in the district, Stickney serves 2.38 million people in a 260-square-mile area that includes central Chicago and 43 suburban communities, and can process up to 1.2 billion gallons per day.

Once purified, the wastewater—from homes, businesses, industry, rain runoff, and groundwater seepage into sewer pipes—is discharged into the Chicago River, where it next flows into the Illinois River and then the Mississippi River, before reaching its final destination in the Gulf of Mexico. The IIT project team, which includes CAEE professors Kenneth Noll and Demetrios Moschandreas, will enhance the ability of the Stickney plant to treat wastewater while minimizing annoying odors to plant workers and community residents.

“If we can monitor and minimize the odors,” says Pagilla, “we can learn how to control them using engineering technology so that they are no longer a nuisance.”

MORE  ONLINE

Metropolitan Water Reclamation District of Greater Chicago:
www.mwrd.org/irj/portal/anonymous/Home
IIT CAEE department: www.iit.edu/engineering/cae

I I T A T H L E T I C S W I N T E R R O U N D U P

Scarlet Hawks Close the Season with a Tidal Wave

To say the IIT Scarlet Hawks and Lady Scarlet Hawks swim teams made a splash this season is an understatement when one considers this tally of statistics: a first-ever relay national title for IIT (and the seventh swimming national title in school history) in the men's 200-yard freestyle relay, 20 national qualifiers, 13 university records, and three All-American recognitions.

"This team is one of the best I have ever coached," says Rob Bond, associate director of athletics and swim coach, about the Scarlet Hawks, whose powerhouse core of Dale Cuffe (BA, 3rd year), Andrew Mehr (PSYC, PS, HUM, 4th year), Kyle Pinsonneault (INTM, 3rd year), and Joe Taylor (PTC, 3rd year) took the nationals relay event and set a new school record with the time of 1:21.98.

"The relay win was definitely the memory of the meet," Bond adds. "We knew it would be difficult to win and that the race was very tight. In fact, the sixth-place team was less than a second behind us." Pinsonneault lead his team members in the relay while Mehr was strategically selected to be the final swimmer.

Mehr, a Camras scholar and triple-major who will be graduating in May, says the relay will likely be his most memorable swim race, even 10 years from now.

"All four of us swam amazingly, far better than I could have expected at the start of the season," he explains. "Winning a national title was the best possible way to end a four-year career with the Scarlet Hawks."

During his time at IIT, Mehr claimed several school records in the sprint freestyle events and all five school relays, and was named a National Association of Intercollegiate Athletics Academic All-American for 2008 and 2009.

Teammates Taylor and Cuffe garnered the other two All-American honors, with Taylor taking second in the men's 100-yard fly and Cuffe placing third in

the men's 500-yard freestyle. Overall, the men's team placed sixth. The Lady Scarlet Hawks, led by Captain Nicolle Mallinger (CE, 4th year), took 10th place at the nationals.

Although Mehr and Mallinger will be leaving IIT this spring, Bond is looking forward to other talented male

and female student athletes rising to the challenge.

"I have even bigger expectations for next year," he says, "as 16 of the 20 national qualifiers will be back with a strong recruiting class joining them."



National champions [left to right] Joe Taylor, Andrew Mehr, Kyle Pinsonneault, and Dale Cuffe

While IIT's athletes know the moves to score victories against the opposing team, Union Board President Ray Ballard (CHE, 3rd year) knows of another secret weapon in the university's athletics arsenal.

"People love it when the Scarlet Hawk shows up at games because the Hawk is ego unmasked," explains Ballard. "The Hawk knows how to distract the opposing players, flirt with the referee, and add energy to the crowd."

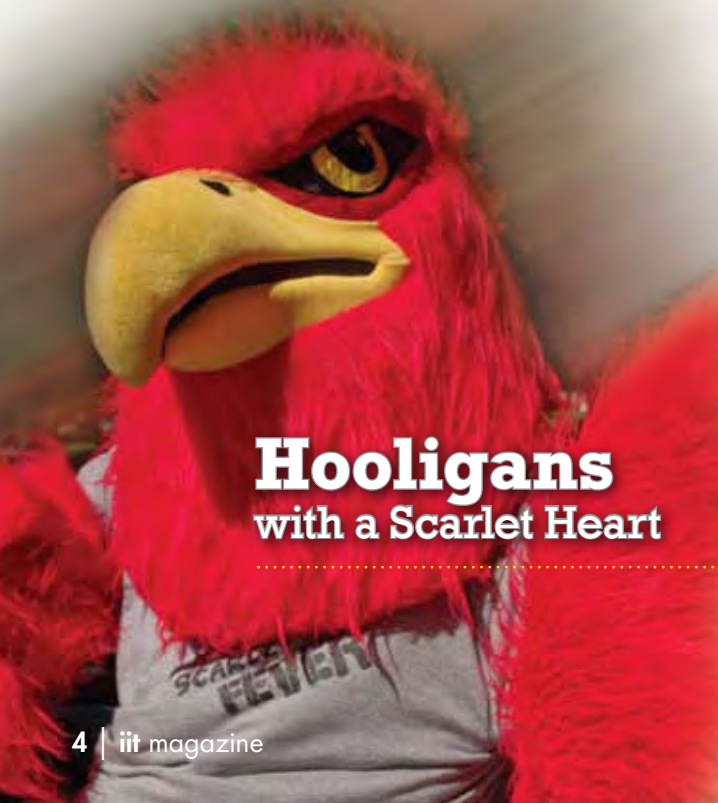
The formidable-yet-friendly red mascot is one member of a group of dedicated IIT supporters who can be found on the sidelines, ensuring that the athletes and spectators are sufficiently fired up: the Scarlet Fever squad.

"Scarlet Fever combined with the student body has provided Illinois Tech athletic teams with the energy and passion needed to be victorious in the pool and the gym, and on the field," says Kelly Fitzgerald, head volleyball coach. "They have financed student body transportation to support our teams at away games, have distributed Illinois Tech water bottles and T-shirts, and have provided pizza to our fans and supporters. As a coach, I always am aware when Scarlet Fever is present at an event; the students have their faces painted red and white, and I continuously hear their support for the Hawks."

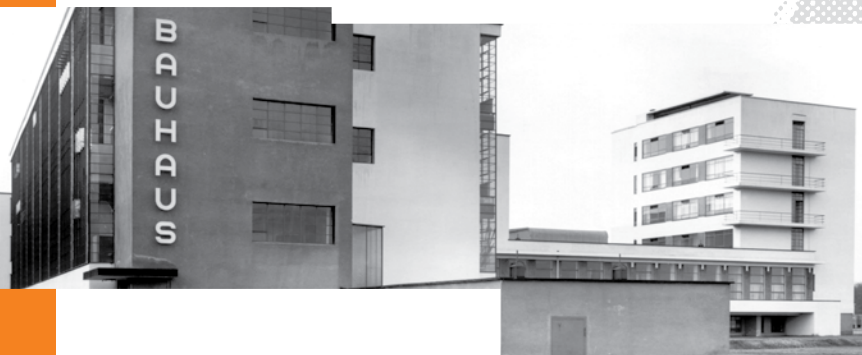
When asked to describe Scarlet Fever in one word, Ballard does so with a laugh. "Hooligans!" he says, adding that their rowdy intentions are purely good ones. "Scarlet Fever is in your face; we let you know that we're here. We try to get the crowd excited."

Scarlet Fever comprises nine students and is under the aegis of the Union Board and the leadership of Vice President Kaleo Pedrina (EE, 2nd year). Students help raise awareness for IIT's sports teams by fundraising and getting the word out via Facebook. While Scarlet Fever also provides important emotional support for the athletes, Ballard says that its purpose goes even deeper.

"It's not only about the fun and games, and putting on face paint," he explains. "At the end of the day, we know that our name is only as good as our institution. When we graduate, we need to have every other graduating student feel the same way and commit 110 percent of themselves to bettering the institution back home and bettering the name of IIT abroad."



Hooligans with a Scarlet Heart



Living Modern Celebrates Bauhaus and Modernism in Chicago

Modernism—it's so 1919.

It's also so 1930s, '40s, and '50s, when Ludwig Mies van der Rohe and László Moholy-Nagy, masters of Germany's Bauhaus school, brought the school's concepts—the fundamentals of modernism—to IIT's College of Architecture and Institute of Design, respectively. And it's so now: to recognize Chicago's role in the current Modernist resurgence, the Mies van der Rohe Society and the School of the Art Institute of Chicago have launched Living Modern Chicago, which runs March 2009–May 2010.

Living Modern Chicago coincides with the 100-year anniversary of Chicago's Burnham Plan and the opening of the Art Institute of Chicago's Modern Wing, and features a yearlong series of events, exhibitions, and tours. As major celebrations in Germany and Tel Aviv this year recognize the 90th anniversary of the Bauhaus, Living Modern Chicago focuses on Chicago and IIT's own role in developing Bauhaus and Modernist principles.

"The Bauhaus valued form and function, creativity, interdisciplinary teaching, and new technology, all of which are extremely relevant now," says Justine Jentes, director of the Mies Society. "Education today is being challenged to play a more responsible role in our society. That's what the Bauhaus sought to accomplish, and Chicago's place in this history, then and now, offers a compelling story."

Living Modern Chicago events at IIT include the Bauhaus to Green Haus speaker series, Bauhaus Labs lectures and workshops, and daily tours of IIT's Mies-designed campus. The Mies Society is also organizing a trip to New York, December 4–6, 2009, for the Museum of Modern Art exhibition, *Bauhaus 1919–1933: Workshops for Modernity*.

Information about all Living Modern Chicago events, taking place throughout the city, is available at www.mies.iit.edu.

Photo of the Bauhaus Dessau (by Lucia Moholy, 1927) courtesy of Bauhaus-Archiv Berlin. © VG Bild-Kunst Bonn

utp@watch

Following on the heels of the successful Hybrid & Electric Vehicle Trade Mission sponsored by the French government in November 2008, University Technology Park at IIT (UTP) hosted Matra–Motor Sports, Global Electric Motorcars (GEM—a Chrysler Company), and All Cell Technologies, LLC (a UTP tenant) on April 6, 2009, as part of a press conference to announce their collaborative efforts to develop and promote electric vehicles.

In addition to supporting startups with wet and dry lab space within the Incubator building, UTP has opened furnished offices and cubicles (with dedicated conference rooms) for emerging companies within IIT Tower at 10 West 35th Street. This space is referred to as the UTP Co-op; Co-op-North (1,651 square feet) is nearly full with a variety of software companies, and Co-op-South (2,201 square feet) is in development.

UTP, in conjunction with IIT's External Affairs, Community Affairs, and Knapp Entrepreneurship Center, as well as O-H Community Partners, is launching TechAdvantage@IIT. This Small Business Administration-funded initiative provides targeted business assistance to minority- and women-owned, technology-based businesses located in the area surrounding IIT. For more information, visit <http://techadvantage.iit.edu> or email techadvantage@iit.edu.

FDA Acceptance of NCFST Food Sterilization Process



[From left] Dan Brown, group manager, laboratory services, Hormel Corp.; Eduardo Patazca, process engineer, NCFST/IIT; and Zhongbin “Ben” Zhang, process engineer, Hormel Corp. load mashed-potato pouches into the high-pressure carrier in preparation for treatment by the novel pressure-assisted thermal sterilization process.

It may be safe, but how does it taste? Although food sterilization decreases the risk of toxic bacteria in packaged foods, it typically requires a high dose of heat, which can sacrifice both the flavor and nutritional content of the food.

In February, the IIT National Center for Food Safety and Technology (NCFST) received acceptance from the Food and Drug Administration on a filing of the NCFST’s new food sterilization process. This process uses high pressure to deliver a level of heat that renders low-acid food products commercially sterile. The first-of-its-kind process, dubbed pressure-assisted thermal sterilization (PATS), is the result of a seven-year study in collaboration with the food industry, government, and the U.S. Army Natick Soldier Center.

Botulism contamination is a particular concern with low-acid foods, such as potatoes and other vegetables, as their low acid content provides the ideal condition for the growth of dangerous bacteria. Making such foods shelf stable—commonly known as ready-to-eat from shelf to table—has proven difficult without exposing foods to levels of high heat (retort) necessary to kill any bacteria.

“The PATS process is unique in that it uses a pressure-driven heating method for sterilization. This method results in improved quality of product produced as a result of both the rapid delivery of heat during sterilization and the rapid elimination of heat during decompression cooling,” says NCFST Director Martin Cole. “PATS is unique due to its exquisitely short sterilization cycle when compared to conventional retort-based techniques. The short cycle time results in minimizing the thermal degradation of the food, which produces products that demonstrate better quality and nutritional characteristics.”

The next phase of the PATS project includes the development of demonstration food samples in rationing packets for U.S. Army combat soldiers. The two- to three-year phase is expected to show that the PATS process will increase the variety of foods that can be made stable for consumption by soldiers, while also allowing these foods to be of higher nutritional value.

● www.ncfst.iit.edu

Mentorship is the Nuts and Bolts of Robotics Club

When he was a high school student, his robotics team earned a provisional United States patent for the “Crazy Chicken Transmission,” a continuously variable gear assembly that enabled the group’s automaton to pull a nearly 700-pound load half the distance of a basketball court. Now, as an Illinois Institute of Technology biomedical engineering doctoral student and president of the Illinois Tech Robotics (ITR) club, Christopher Jones (AE ’07) ensures that younger generations of students realize there’s a lot more that goes into the building of a robot than the requisite motors and drive trains.

Jones and clinical psychology doctoral student Karina Powell (PSYC ’08) established the club in 2004. Both attended the Utica Center for Mathematics, Science, and Technology, a Detroit magnet school, where they assembled robots for the FIRST Robotics Competition (FRC). Founded by Segway inventor Dean Kamen, FIRST (For Inspiration and Recognition of Science and Technology) organizes a series of mentor-based robotics game-solving competitions across the country for high school students. As FIRST participants and advocates, Jones and Powell knew they wanted the IIT club to focus on mentoring youth.

“We wanted to take the robotics that we learned on our own and the education we were getting from IIT, and give some of that back to the high school students,” says Jones. Although the ITR team builds robots for events such as the collegiate Jerry Sanders Design Competition, providing guidance to students is its top priority. Members help prepare high school students who are building robots for the FIRST Tech Challenge and the FRC, and coach students ages 6–9 for Junior FIRST LEGO League and ages 9–14 for FIRST LEGO League robotics events. Jones and Earl Fairall (AE, 3rd year) mentored students from the new Perspectives/IIT Mathematics and Science Academy four to five days each week for six weeks in preparation for the regional FRC, held the last weekend of February.

“FIRST Robotics is not about building robots—its underlying purpose is to get students excited about science and technology,” explains Fairall, ITR president emeritus. “As IIT students, we are excited about science and technology. Mentoring a FIRST team is a fun and effective way of sharing this excitement with young people.”

Jones notes that the most prestigious honor at the FRC is not that of first place but the Chairman’s Award, which recognizes the team that has most displayed “gracious professionalism,” a term that recognizes attitude, spirit, and community, more than just event performance. “As mentors,” says Jones, “that’s what we try to teach the students, that it’s more than just nuts and bolts or screwing things together.”

● www.iit.edu/~robotics



Photo: Bonnie Robinson