50 students intern with Discovery Park through DURI program

The Discovery Park Undergraduate Research Internship Program (DURI) is a new internship program that began during the Fall 2005 semester.

The participating interns are some of the top undergraduates at Purdue. The program is open to all majors with sophomore-standing or higher. The Fall 2005 semester was the pilot program. For the Spring 2006 semester, the DLC received 98 applications for 30 intern positions.

The current semester has 46 students, with an average GPA of 3.54, working on 44 projects that represent all ten Discovery Park centers. The high quality of projects is a testament to the faculty reception of this program. DURI students receive special opportunities beyond the research projects and seminar series. During Fall 2005, the interns were invited guests for the Bindley Bioscience Center and Birck Nanotechnology Center opening ceremonies.

The DURI program has formed partnerships with different offices across campus. One such collaboration is with the Indiana Space Grant Consortium to jointly-fund approved DURI projects that also meet INSGC criteria. The increased resources will enable the DLC to support new initiatives for undergraduate research. The DURI program has also worked with the University Honors Program to advertise available opportunities to some of the most distinguished students on campus. We are exploring the possibility of allowing research credits to count toward honors credit requirements of the new honors diploma. Finally, DURI is working currently with the Study Abroad Office to explore international partnership prospects in Australia and Mexico. Such partnerships will expand diversity within the student population. They also present an excellent opportunity to advertise Purdue’s various graduate study programs to top international scholars.

Students talk with Susan Sclafani of the Chartwell Education Group at the Interns end-of-year poster session and banquet.

State approves DLC building

In March 2006, the Indiana Legislature approved construction of a $10 million building for the DLC. The building design team will meet with architects soon to discuss moving forward with the plans in hopes of an October 2006 groundbreaking. The space is designed for development and testing of learning environments, methods, and technologies and will also include a learning commons.

DURI Interns @ A Glance

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<td>Total</td>
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Taking nanoscience to the public

Recent movies, books, and advertising campaigns have brought the term nanoscience to the public. However, few people understand the depth, breadth, potential, and risks associated with this new technology. The Discovery Learning Center is partnering with the College of Agriculture to fund and spearhead a collaborative effort to develop a museum display focused on nanoscience. This 400 square foot display, highlighting research efforts at Purdue University, opened at the Indiana State Museum in February 2006. A research project assessing the impact of the exhibit on middle school students will be conducted in May 2006. After a six month run, the exhibit will travel to various other museums in Indiana, the Midwest, and elsewhere.

Purdue joins nanoscale science education network

On February 21, 2006, the Discovery Learning Center hosted a campus visit by Larry Bell, vice president for research, development and production at the Museum of Science in Boston, who is the lead investigator on a $20 million project funded through the National Science Foundation to form a national Nanoscale Informal Science Education Network. Bell presented a lecture that is streamed on the DLC website where he described the network and potential avenues for university and museum collaborations for promoting nanoscience learning. He said that one of the major challenges facing the network was how to teach children the idea of nanoscience, something that cannot be seen.

"Traditionally, we teach children with physical displays, and we had to invent some new ways to educate." Visits with scientists, engineers, and educators across campus illustrated the depth and breadth of Purdue’s expertise in nanoscale content, education applications, and technology.

Engaging students (and teachers) with nanoscience

NCLT is the first national center for learning and teaching of nanoscale science and engineering education in the US.

A NCLT Professional Development planning team has been established under the leadership of Professor Nick Giordano. This includes lead science teachers, nano-researchers, and learning scientists.

Lead Science Teacher, Renee DeWald, in cooperation with her fellow planning team members, has crafted an NCLT Professional Development plan encompassing four strands:

- Nanoscience Concepts
- Nanoscience Pedagogy
- Curriculum Materials Development
- Teacher Leadership

(using the Concerns-Based Adoption Model - CBAM)

Summer Professional Development workshops for teachers were held at Purdue, University of Illinois, Chicago, and Northwestern in Summer 2005. Planning is underway for 2006 PD Workshops.
The Discovery Learning Center has organized an interdisciplinary group of researchers interested in transforming learning and teaching through the development of what has been referred to as digital gaming based learning (DGBL), mobile learning, interactive technology, gaming education and gaming technology. All of these terms refer to the integration of information technology into educational innovations and new learning environments. The “gaming committee” is developing collaborative research projects, a new interdisciplinary gaming based curriculum, and proposals for external funding.

One specific project, Zecosystem, will create a learning ecosystem that engages technologies and significant computational power to promote science, technology, engineering, and mathematics education. With support and leadership from the DLC and the Cyber Center, the Zecosystem vision is to leverage significant on-going R&D in computational infrastructure, middleware, and science gateways funded by the National Science Foundation (NSF) and other industrial partners at Purdue University to create new gaming based digital learning environments.

The DLC is also partnering with Entertainment Arts (EA) to equip our labs to analyze, design, and evaluate games and gaming. Through faculty exchanges and on-site observations and student internships and recruitment, we are working with EA to develop state of the art gaming technology and design an interdisciplinary graduate degree that interests and prepares students for work in animation, simulation, interactive learning and communication necessary for a changing work world across all sectors.

In another related initiative, the DLC is partnering with The Michael Cohen Group, an internationally recognized leader in innovative market, public opinion, and evaluation research who was recently chosen as the lead evaluator for a five-year $14 million Department of Education Ready To Learn grant. The Cohen research team is partnering with eight major U.S. universities and two museums on this project and has approached Purdue about providing technical expertise for building mobile gaming labs designed to promote literacy among our most disadvantaged populations.

Building on our successful 2004 and 2005 Seed Grant competitions, which have funded five projects totaling nearly $100,000, the Discovery Learning Center recently completed its third annual call for seed grant proposals.

Twenty projects for a total of more than $663,000 were submitted. Five projects were funded.

**Digital Gaming Based Learning Initiative (DGBL) launched**

**3rd annual seed grant competition completed**

- Erina MacGeorge (Communication) and Stephen Durbin (Physics)—“Instructional Technology in First-Year Physics Education”
- Gabriela Weaver (Chemistry) and Carlos Morales (Computer Graphics)—“Game-Based Learning in Chemistry”
- Julie Conlon (Physics), Laura Cavio (Convocations and Lectures), Muke Mullis (Entomology), Tom Turpin (Entomology), Lynn Bryan (Physics), and Deborah Bennett (Ed. Studies)—“The Impact of Performing Arts on Science Learning”
- Krishna Madhavan (Rosen Center for Advanced Computing), Gary Bertoline (Rosen), Sebastien Gaasguen (Rosen), Mihaela Vorvoreanu (University of Dayton), Carlos Morales (Computer Graphics), Ron Glotzbach (Computer Graphics), and Sunil Prabhakar (Computer Science)—“Zecosystem: Futuristic Learning and Interactive Technologies Environment (FLIGHT)”; Jointly funded by the Cyber Center and the DLC

The DLC is also providing assessment support for David Salt’s (Horticulture/Landscape Architecture) and Jon Bricker’s (Agriculture Communications) project, “Genomics Revolution Uncloaked: A Virtual Expedition through the Genomics Landscape.”
Interns for Indiana program celebrates another successful year

DLC has created and directs the Interns for Indiana component of Purdue’s Opportunities for Indiana program. Funded by Lilly Endowment, this project seeks innovative ways to keep Indiana’s college graduates in Indiana. One hundred sixty-nine students have interned with 77 different start-up companies through this program since its inception in summer 2004. The Interns for Indiana program offers students a unique opportunity to learn about the business world through a combination of education and experience.

To date, student interns have supported Indiana start-up companies by providing over 70,000 hours of labor. Ten interns have been hired full-time and thirteen students part-time or as a consultant by the company with which they interned, and five students have started companies of their own. Students from nine of Purdue’s 14 academic units have held internships, representing 42 different majors.

Of the students who left the program before summer 2005 and graduated from Purdue, 69% have found full-time employment, 22% are enrolled in graduate school, and 7% are still seeking full-time employment. Seventy-nine percent of the graduates employed full-time work in the state of Indiana, and 39% of those are with their original internship companies.

Interns at the West Lafayette campus participated in a one-credit seminar series exploring entrepreneurial issues and internship skills while giving interns a chance to develop as a community. This summer, the program’s placement goal is 45 students at the West Lafayette campus.

Cross-national research and engagement collaboration with China begins

On April 14, the DLC met with representatives from the Colleges of Science and Education, an educational consulting firm, and faculty members from Chinese Universities. Dr. Ping Wang, from Southeast University in China, Dr. Qiong Wang from Peking University, Dr. Susan Sclafani with the Chartwell Education Group, and Dr. Yingkui Li, a former Purdue post-doctoral scholar who is now at Bowling Green State University visited Purdue to begin planning for the Sino-American Center for Science Education Research and Engagement (SA Center) at JIE.

Their visit was funded by the Purdue International Programs Office as part of the newly launched Asian Initiative.

The project represents an unprecedented opportunity to join forces with the top science teacher preparation institutions in China to carry out research and engagement projects that may transform science teaching and learning in China.

Delegates with President Jischke at the Interns for Indiana and DURI banquet. Yingkui Li, Qiong Wang, Jischke, Ping Wang, and Susan Sclafani.