

# Observations *on* UD's Impact *in the* Diamond State

UD's research into harnessing the power of our solar system's only star has resulted in the development of 10 new technologies, eight of which are now patented. So far, 60 percent of these solar innovations have been licensed, all to U.S. companies.

Delaware's official state star, the Delaware Diamond, was adopted on June 30, 2000, as a star of the 12th magnitude and the first star on the international star registry ever to be registered to an American state. It is located in the constellation Ursa Major (Great Bear).

Dare to be first.

UNIVERSITY OF  
DELAWARE



# A MESSAGE from the PRESIDENT



**"Delaware will shine."** That's what UD's fight song says. And, as the flagship university of the Diamond State, that's our promise.

The University of Delaware grows the state's economy in several significant ways: UD provides jobs, directly and indirectly, to thousands of Delaware residents, and the University, its employees and its students spend considerable dollars in-state. Plus, UD graduates about 4,700 students each year, many of whom remain in Delaware and contribute their skills and their wages to the state's economy.

But it's the rapid development and deployment of new knowledge that compounds UD's return on investment and keeps the University a powerful economic engine driving state and regional growth. That inventive capacity produces students whose real-world learning prepares them to lead globally and act locally. It yields new products and processes based on UD research, and generates jobs across many sectors as those innovations are brought to market. It spurs strategic partnerships with booming industries like health sciences and alternative energy technologies, where Delaware is seizing a competitive advantage. And it proliferates small-business startups and spinoffs that trade on the University's abundant intellectual assets.

UD is applying its strengths and resources to benefit Delaware—to prepare the state's students for 21st-Century challenges and worldwide competition, to make a real and significant difference for its families and in its communities and to build its creative capital in relentless pursuit of prominence and prosperity. Simply put, investment in UD pays off. (In the pages that follow, we'll show you just how much.)

Through recession and recovery, the Diamond State hasn't lost its luster.  
**Delaware shines—brighter than ever before.**

Patrick T. Harker  
President

In July 2007, **Patrick Harker**, PhD, became the 26th president of the University of Delaware. His wife, **Emily**, teaches advanced math at the middle-school level. They live in Newark, Delaware, with their dog, **Zori**.

# A CONSTELLATION of BENEFITS



- ★ If you live in Delaware, the University of Delaware touches your world every day.
- ★
- ★ **UD is an economic engine, a provider of key resources, an incubator of new ideas and a source of solutions to many of the state's and region's most pressing problems.** The ideas developed and tested at this **CITIZEN UNIVERSITY** are applied close to home and around the world.
- ★
- ★ In this report, you'll find data and stories that illustrate the University's significant role in your state, your community, your family and your life.
- ★



Michele Maughan is a graduate student in the College of Agriculture and Natural Resources, investigating the immune response of different poultry species to avian influenza.



- ★ **Dana Herbert** entered UD planning to become a restaurateur. After receiving his bachelor's degree in hotel, restaurant and institutional management in 1998, he went on to earn degrees in culinary arts and pastry. Today, Herbert is head chef for the Delaware River and Bay Authority and runs a specialty baking business, Desserts by Dana. His custom-made cakes and sugar sculptures are popular for weddings, birthdays and other special occasions, and have been featured in such magazines as *American Cake Decorating*. Herbert lives in Bear, Delaware.

# POINTS *of* LIGHT for DELAWARE



★ **Kathleen Matt, PhD**, is dean of UD's College of Health Sciences, and leads two partnership programs that are critical to promoting health research and education in Delaware. She's executive director of the Delaware Health Sciences Alliance and co-director of UD's health education partnership with Thomas Jefferson University. A graduate of UD with bachelor's and master's degrees in biology, Matt lives in Newark, Delaware. ★

The University of Delaware is one of the state's largest employers. Nearly 3,900 faculty and staff earn \$334 million each year in wages. That money is pumped back into communities throughout the state for housing, food and other living expenses.

The regional economy—comprising Delaware, Maryland, New Jersey and Pennsylvania—receives roughly \$608 million in added income each year through UD's payroll and its spending for supplies and services. Some \$64 million is generated by the off-campus expenditures of students alone, with another \$18 million contributed by visitors to UD.

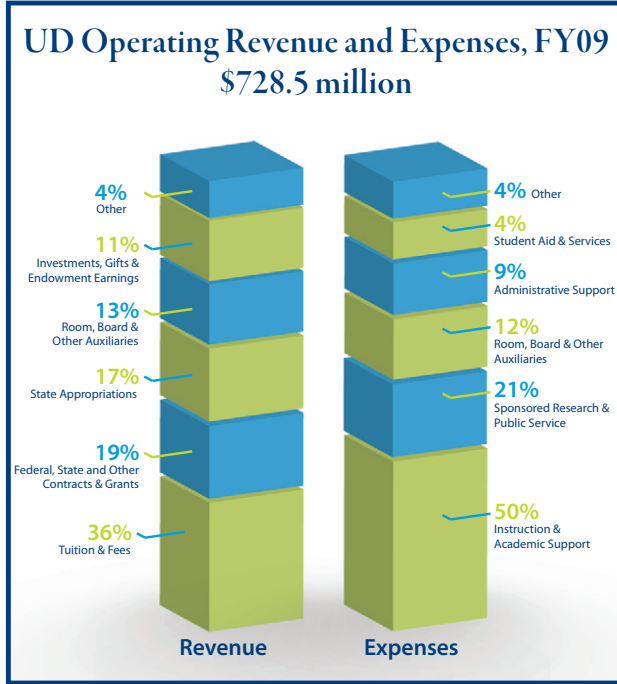
Every year, more than 700,000 people come to the UD campus for athletic, social, community and cultural events. And each year, 26,000 prospective students visit the University (called an **EAST COAST CLASSIC**) accompanied by two guests apiece.

**Altogether, the University, its employees, students, alumni and visitors spend about \$2.9 billion annually just in Delaware.** This yearly

expenditure supports nearly 26,500 jobs, or roughly 5 percent of all the jobs in Delaware.

The University is also working to bring more high-paying jobs to the Diamond State. UD has won nearly \$60 million in federal stimulus funds, which should produce an economic boost of nearly double that amount in Delaware and stimulate the employment of more than 1,000 Delawareans in 2010.

In November 2009, UD purchased 272 acres of land formerly occupied by the Chrysler Newark Assembly Plant. **Redevelopment of this property into a major science and technology campus will bring significant dollars and thousands of jobs to Delaware.**



The first phase of development—comprising just one-third of the total acreage—could yield 5 million square feet of academic and commercial space, filled with faculty, students, researchers, office and retail workers and entrepreneurs.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★  
More than 54 percent of UD's \$728.5 million in annual revenue comes from sources outside the state. As a nonprofit institution, the University's revenues and expenditures are equal to one another.



In the Cardiac Catheterization Lab at Christiana Care Health System—a Delaware Health Sciences Alliance partner institution—UD professor William Rose presses a wand-like tonometer against a patient's forearm to take an ultrasound.



★ **Casey Howard** is a field hockey stand-out and a 2010 graduate of UD's College of Education and Human Development. She was named a UD Senior Athlete of the Year and the Delaware Sports Writers & Broadcasters Association's Athlete of the Year. Howard lives in Camden, Delaware. ★



# EDUCATING *our* RISING STARS

★ **John Bartley, PhD**, is faculty director and associate professor of biology in the Associate in Arts program in Wilmington, Delaware. ★  
 ★ UD's Associate in Arts program increases Delawareans' access to higher education. In 2010, the University awarded 174 associate degrees to Delaware students. Most of these students subsequently enroll in one of UD's 125+ bachelor's degree programs. ★  
 ★ Bartley lives in Lincoln University, Pennsylvania. ★



The University of Delaware's Laboratory Preschool in Newark provides high-quality early care and education programs for young children, including those with special needs, and their families. The preschool trains and mentors UD students, facilitates University research and serves as a professional development site for high school students and early childhood education providers.

From cradle to grave, the University of Delaware is actively involved in educating the state's citizens. The lead principle in UD's strategic plan, the Path to Prominence™, is "Delaware First," an assurance that every Delawarean will have access to a top-quality education.

It's virtually impossible for a child growing up in Delaware to graduate from high school without benefitting from UD's education programs. UD leads the state's early childhood education efforts through research, training and practice; trains primary and secondary school teachers and administrators; develops and improves curricula through active research; and helps teachers refine their skills through professional development programs.

UD is the flagship of higher education in Delaware, and so—while two-thirds of the University's students come from outside the state—Delaware residents come first. Through UD's Commitment to Delawareans,\* the University promises in-state students admission to UD if they take certain courses in high school and earn qualifying grades in them.

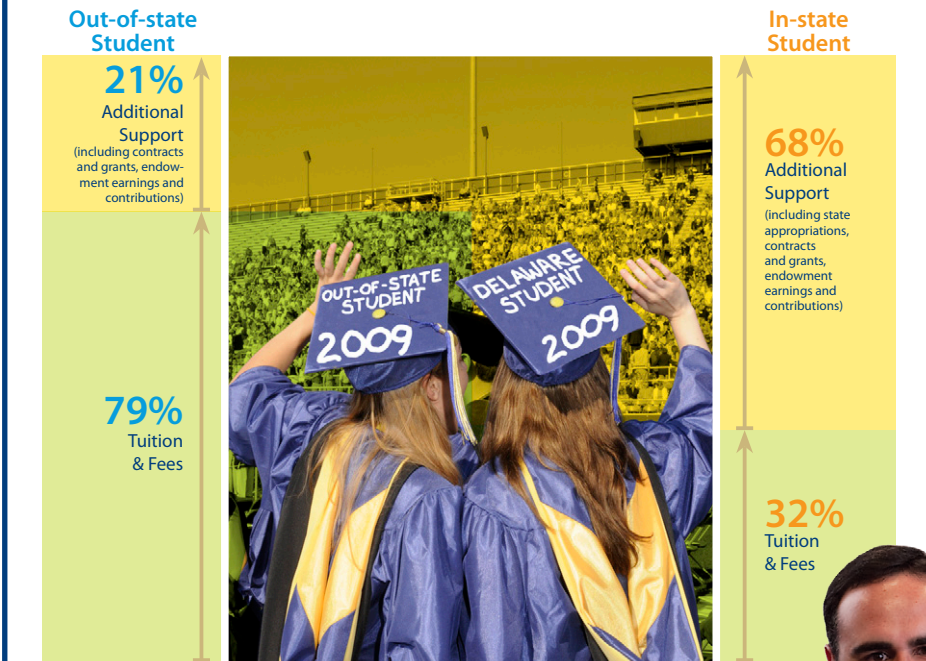
**In 2010, nearly 90 percent of the Delaware students who applied to the University were admitted—66 percent to the Newark campus and 23 percent to the Associate in Arts program, which can lead directly to a four-year degree.** In contrast, only 49 percent of out-of-state applicants, on average, are admitted each year to UD.

State appropriations cover much of the difference between the price of tuition and fees for in-state students and the price for out-of-state students. The University uses the state's investment to subsidize education costs for in-state students and to build and maintain UD's physical plant.

The University supports **DISCOVERY LEARNING** beyond a bachelor's degree, through its 140 graduate degree programs, professional and continuing education programs, extensive outreach efforts, distance learning programs and even learning in retirement through UD's Osher Lifelong Learning Institutes in Wilmington, Dover and Lewes.



## Full Cost of Educating a University of Delaware Student



The average one-year cost to educate a UD student (undergraduate and graduate) in fiscal year 2009 was \$26,797.

★ **Ernesto López** is the state volunteer coordinator for 4-H Youth Development in UD's College of Agriculture and Natural Resources. ★  
 ★ 4-H is the largest youth development program in Delaware, with 70,000 youth and 3,500 adult volunteers participating in annual programming. López handles all aspects of volunteer recruitment, retention and risk management, and he serves as the advisor to the Delaware 4-H State Teen Council. ★  
 ★ He lives in Lewes, Delaware.



# A GALAXY of OPPORTUNITIES



From Boston to Silicon Valley to North Carolina’s Research Triangle, every hotbed of technological innovation in the country is close to at least one great university. If Delaware is to be a center for technology, UD needs to lead the way as a **TALENT MAGNET**.

**Talent goes where talent is.**

Whether it’s the most efficient solar cells yet produced, an electric car that can store electricity and return it to the grid, a device that enables mobility in young children with physical disabilities, a fluid that hardens to an impenetrable solid on impact, a new vaccine against avian flu, a portable filtration device that can remove even tiny viruses from drinking water or a technology that enables people to operate their cell phones and computers with the touch of a finger, UD represents **IDEA LEADERSHIP**.

The University of Delaware’s research enterprise just keeps growing. UD is ranked among the nation’s top 100 universities in federal obligations for science and engineering research—and is among a minority of institutions that made the list without a medical school.

**Over the past decade, the University has doubled its competitive grant and contract funding to more than \$163 million.**

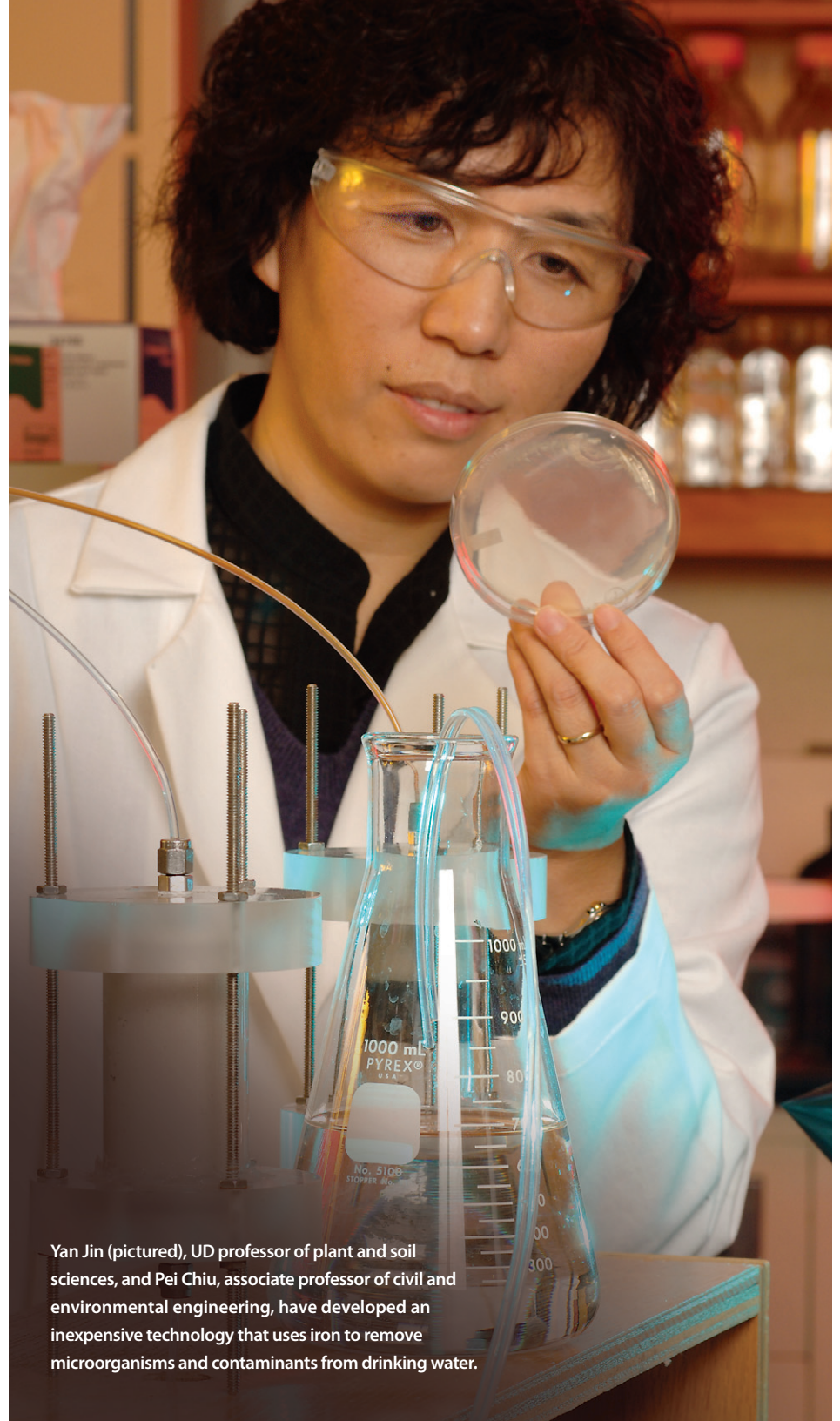
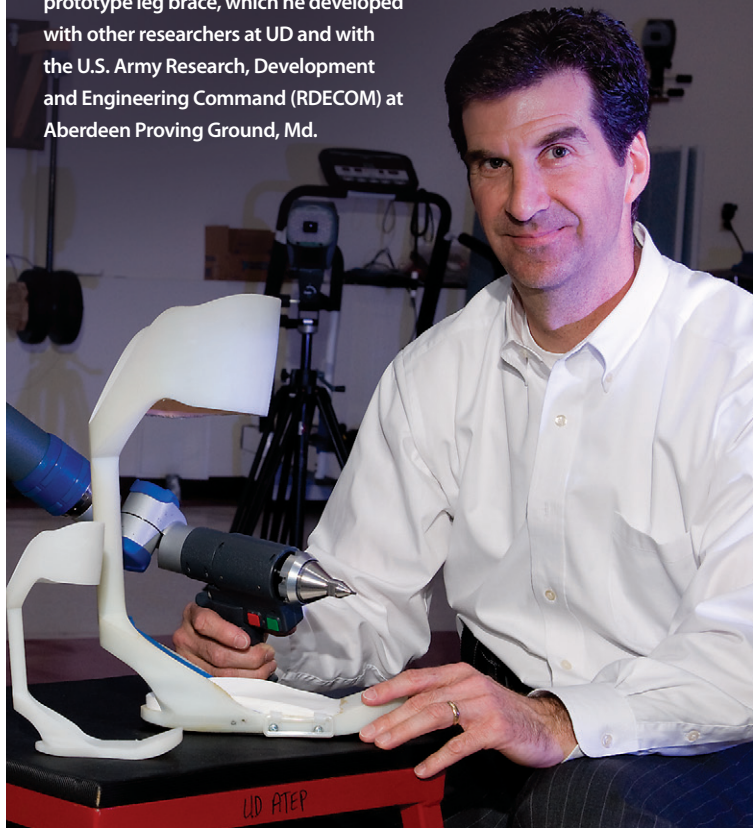


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**Sunil Agrawal**, PhD, a professor in UD’s Department of Mechanical Engineering, leads a research group credited with developing robotic devices for neuro-motor training, including exoskeletons (shown on next page—small inset) for gait assistance in stroke patients and power chairs for infants with special needs. The College of Engineering professor also advised a team of middle-school students whose project qualified for the Lego League World Festival in 2010. Agrawal lives in Newark, Delaware.

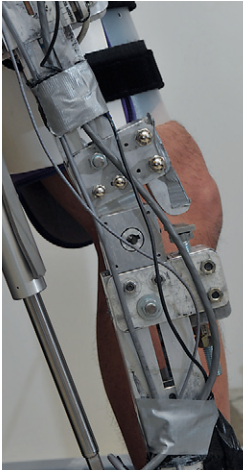
But getting good ideas into the marketplace requires another set of skills. **That’s why UD’s Office of Economic Innovation and Partnerships was formed—to serve as a gateway between UD researchers with good ideas and those who can transform those ideas into commercial products and processes: financiers, venture capitalists, manufacturers and marketers.**

The office helped negotiate a Cooperative Research and Development Agreement with the U.S. Army—an agreement that will bring thousands of technical and research jobs to Delaware.

UD professor **Steven Stanhope** holds a prototype leg brace, which he developed with other researchers at UD and with the U.S. Army Research, Development and Engineering Command (RDECOM) at Aberdeen Proving Ground, Md.



Yan Jin (pictured), UD professor of plant and soil sciences, and Pei Chiu, associate professor of civil and environmental engineering, have developed an inexpensive technology that uses iron to remove microorganisms and contaminants from drinking water.



PAIR Technologies is preparing to commercialize a high-precision detector that can quickly identify low-level biological and chemical agents in solids, liquids, and gases. UD owns the patents for the technology and has taken a small equity position in the company. Partners in PAIR Technologies (left to right): Scott Jones, UD professor of accounting and director of UD’s Venture Development Center; Bruce Chase, former DuPont research chemist; John Rabolt, UD professor of materials science and engineering; Dan Frost, 2008 UD MBA graduate.

- ★ **David Wilson**, PhD, is assistant professor of political science and international relations, psychology, and Black American studies in UD’s College of Arts & Sciences. He’s a national expert in public opinion polling and survey research methods. Wilson leads the public opinion initiatives in UD’s Center for Political Communication and trains undergraduates in polling activities through the nationally regarded Blue Hen Poll. He lives in Bear, Delaware.



# The SKY'S the LIMIT

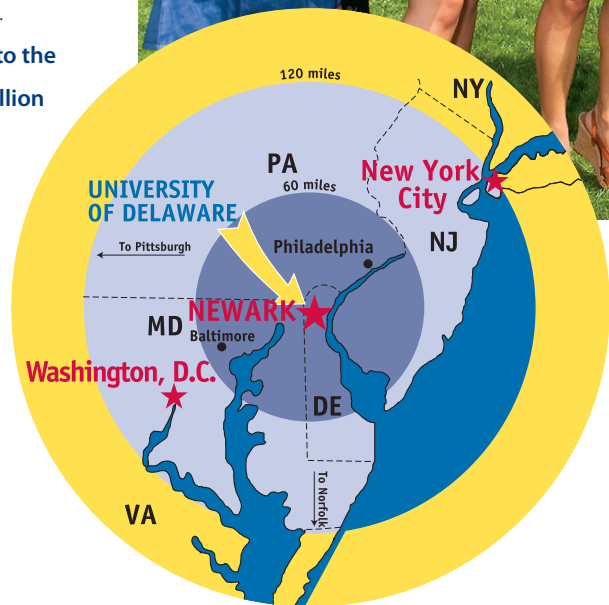


Education increases lifetime income. According to the Bureau of Economic Development, **a college graduate's median annual salary is 64 percent higher than a high school graduate's.** For the average UD bachelor's degree holder, this translates to an extra \$830,000 earned over his or her working career. **SMART MONEY** indeed.

A graduate degree pays off even more. An individual with a master's degree or PhD earns 112 percent more, on average, than someone with only a high school diploma. For UD's advanced degree recipients, that's a cool \$1.5 million more than a high school graduate over a lifetime.

With 146,000 living UD alumni and nearly 5,000 joining their ranks every year, the economic potential of our graduates is significant. About 41,000 Blue Hens live in Delaware, and thousands more live and work in neighboring states. **The accumulated contributions of these alumni to the regional, four-state economy amounts to \$1.5 billion in added income each year.**

- ★ **Rita Chang** earned an honors degree from UD's College of Education and Human Development in 2010. A Dean's Scholar, Chang created her own major: Social Responsibility in the Textile and Apparel Industry. While at the University, she served as president of the Fashion Merchandising Club and on the Office of Judicial Affairs Appellate Board. She was a Blue Hen Ambassador, a member of the UD Symphony Orchestra and a UD Distinguished Scholar Mentor. She interned at Nike Taiwan as a Plastino Scholar, and she helped found UnitedD Students for Haiti, a group raising money to rebuild a rural hospital destroyed in the country's 2010 earthquake. Chang lives in Hockessin, Delaware.



# A STELLAR INVESTMENT

The University of Delaware also yields a great return on investment. The state of Delaware allocated \$126.7 million to UD last year, and **every state dollar invested in UD returns \$9.64 to Delaware's economy.**



The Exelon Trading Center in UD's Alfred Lerner College of Business and Economics is a 2,200-square-foot educational facility designed to replicate the trading floors in Wall Street investment banks, brokerage houses and hedge funds. The trading center features the same computer hardware, software, networks and market data feeds that are used in every financial institution around the world.

## Average Earnings by Educational Level

	Median Annual Salary	Lifetime Earnings Over High School Graduate**
Graduate Degree	\$69,056	\$1,500,000
Bachelor's Degree	\$53,300	\$830,000
High School Diploma	\$32,552	

Over a working lifetime, bachelor's degree holders from UD earn \$830,000 more than high school graduates. Graduate degree holders from UD earn \$1.5 million more over a working lifetime.  
 The University of Delaware creates \$2.1 billion of incremental lifetime earnings for members of each graduating class.

- ★ **John Ewart** is an aquaculture and fisheries specialist with the Delaware Sea Grant Program in UD's College of Earth, Ocean, and Environment. As the liaison between the University and the public, Ewart brings citizens' aquaculture and fisheries concerns to UD faculty and administrators, and makes the public aware of UD's research, instruction and extension efforts in these areas. He lives in Lewes, Delaware.



Dare to be first.



**SOURCES**

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Research Office, University of Delaware

Undergraduate Admissions, University of Delaware

College of Agriculture and Natural Resources  
College of Arts and Sciences  
Alfred Lerner College of Business and Economics  
College of Earth, Ocean, and Environment  
College of Education and Human Development  
College of Engineering  
College of Health Sciences

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\* UD's Commitment to Delawareans: Beginning with freshmen entering UD in 2009–10, all admitted Delawareans are awarded aid up to their full demonstrated financial need, inclusive of tuition, fees, on-campus room and board and books. The University's goal is to cap Delawareans' total indebtedness, upon graduation, at one-quarter the cost of a four-year UD education.

\*\*The additional average lifetime incremental income is discounted for foregone wages while attending the University, future periods of unemployment and other periodic absences from the job market.



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