

NDWorks

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News for Notre Dame faculty and staff and their families

AN UNDEFEATED SEASON!



LOUIS LOPEZ/CSM (CAL SPORT MEDIA VIA AP IMAGES)

Coach Brian Kelly has joined the ranks of Notre Dame football coaches who have achieved undefeated seasons—a list that includes Knute Rockne, Frank Leahy, Ara Parseghian and Lou Holtz. Above, Fighting Irish linebacker Carlo Calabrese, #44, celebrates Notre Dame's win over the USC Trojans at Los Angeles Memorial Coliseum on Saturday, Nov. 24, bringing the season's record to 12-0. Notre Dame will play Alabama for the National Championship in Miami on Monday, Jan. 7.

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NEWS BRIEFS

NOTRE DAME PHOTOS MAKE GREAT CHRISTMAS GIFTS!

All official University photos available through photos.nd.edu (including the 2012 football season as well as scenic and seasonal views of campus) are available for 20 percent off through Tuesday, Jan. 8. Use coupon code ND#1 during the checkout process.



T'eo

Fechin.”

The exhibition opened in Kazan, Russia, in late 2011 and subsequently traveled to St. Petersburg. In February 2013, the exhibition opens in Seattle at the Frye Art Museum. The exhibition was organized by the Foundation for International Arts and Education in Bethesda, Md. The catalog (in Russian or English) is available from the foundation (fiac.org, 301-656-6102).

NOTRE DAME WELLNESS CENTER HOLIDAY HOURS

- Monday, Dec. 24 (**Christmas Eve**): 7 a.m. to noon
- **Christmas Day: closed**
- Wednesday, Dec. 26: 8 a.m. to 5 p.m.
- Thursday, Dec. 27: 8 a.m. to 5 p.m.
- Friday, Dec. 28: 8 a.m. to 5 p.m.
- Saturday, Dec. 29: 8 a.m. to noon
- Monday, Dec. 31: 7 a.m. to 3 p.m.
- **New Year's Day: Closed**

During holiday hours, the **Wellness Center Pharmacy** will **open** half an hour later than the Wellness Center each day it is open and **close** half an hour after the Wellness Center's scheduled close time.

The center resumes **regular business hours** Wednesday, Jan. 2: 7 a.m. to 7 p.m., Monday through Friday; 8 a.m. to noon, Saturday; pharmacy, 7:30 a.m. to 7:30 p.m., Monday through Friday; 8:30 a.m. to 12:30 p.m. Saturday.

DEAN PORTER PUBLISHES BOOK ON NICOLAI FECHIN

Dean Porter, emeritus director of the Snite Museum of Art, is the author of a catalog of the work of Russian-American painter Nicolai Ivanovich Fechin. Porter served as consultant and American curator of a joint Russian-American exhibition of Fechin's work, "Discovering 20th Century Russian Masters: Nicolai



NOTRE DAME RANKS NINTH IN PERCENTAGE OF STUDENTS STUDYING ABROAD

The University ranks ninth in percentage of students participating in study abroad programs among American doctoral/research institutions, according to a report released by the Institute for International Education (IIE).

During fall 2010, spring 2011 and summer 2011, the focus of this year's study, 59.7 percent of Notre Dame students had participated in study programs in other countries, a 2.8



London Centre

percent increase over the previous year. The University of San Diego ranked first in the IIE report with an 86.8 percent participation rate, followed by Georgetown University at 75.9 percent. Notre Dame ranked ninth last year as well.

Notre Dame also ranks 13th among research institutions for number of students participating in long-term study abroad experiences,

17th among research institutions for number of students participating in mid-length study abroad experiences, and 36th amongst research institutions for total number of students participating in study abroad experiences.

Notre Dame International offers international study programs in 19 nations: Australia, Brazil, Chile, China, England, Egypt, France, Germany, Greece, Ireland, Israel, Italy, Japan, Jordan, Mexico, Russia, Spain, Senegal and Uganda, as well as a program in Washington, D.C.

NOTRE DAME MBA RANKS AMONG TOP PROGRAMS

The Notre Dame MBA ranked No. 20 among U.S. business schools in the Bloomberg Businessweek magazine's biennial survey, **The Best U.S. Business Schools 2012**, released Thursday, Nov. 15. The program, located in the Mendoza College of Business, jumped four spots from its 2010 ranking.

"We continually focus on providing the rigorous, values-based education that Notre Dame has always stood for," said **Mary Goss**,

senior director of the Notre Dame MBA. "But over the past two years, we've put a great deal of effort into enhancing our career development curriculum and engaging in an aggressive outreach to corporations across the country. We're very proud of our students, who have competed well in an incredibly difficult hiring environment."

The Notre Dame MBA, which offers one- and two-year programs, is noted for its innovative teaching in the area of problem solving and for its emphasis on personal and corporate ethics as well as social responsibility. It was ranked No. 4 in the Aspen Institute's 2010-2011 "Beyond Grey Pinstripes," a biennial ranking and survey of top U.S. business schools' incorporation of social and environmental stewardship into their curricula and research.

UNIVERSITY HEALTH SERVICES AWARDED ACCREDITATION

University Health Services (UHS) has been awarded national accreditation status for three years by the Accreditation Association for Ambulatory Health Care Inc., aaahc.org, the nation's leading accrediting organization for outpatient facilities.

The accreditation effort involved a three-to five-year preparation period, and was UHS's first application for the credential.

Says **Ann E. Kleva**, University Health Services director, "We're so proud and excited to have this credential. The staff has worked on this for more than three years, and it's ongoing. Accreditation recognizes the quality of care and treatment provided here."

Notre Dame Conference Center still a full-service facility

Center partners with Catering by Design

BY COLLEEN O'CONNOR, FOR NDWORKS

Scheduling an event at the Notre Dame Conference Center? Food service is still available while the Morris Inn is temporarily closed for expansion and renovation whether it's for a board meeting, conference or wedding reception.

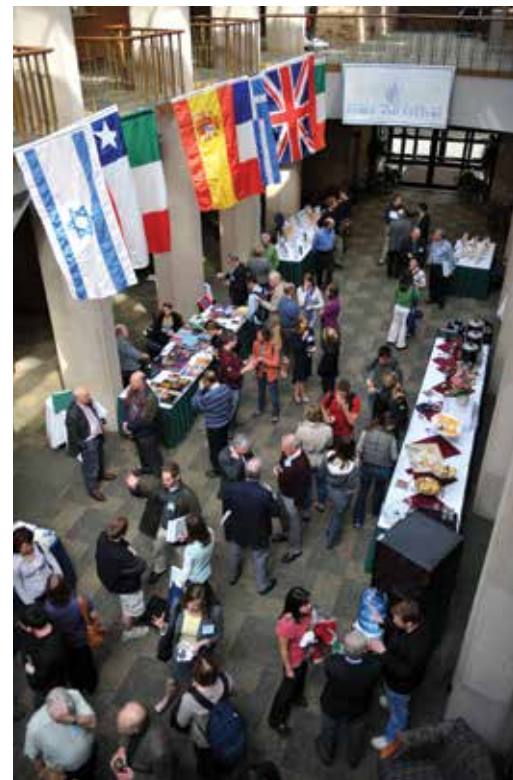
By partnering with Catering by Design, the NDCC is able to continue providing the same quality food products and services that for many years have been provided by the Morris Inn Banquet Department.

In addition, the Center's "Inside 30" program, which provides meeting space at no charge for departments if booked within 30 days of the event, is still available. Says **David Harr**, associate vice president for auxiliary operations, "Our Conference Center is dedicated to its mission of merging scholarship with hospitality."

Hosting more than 1,200 events each year, the Notre Dame Conference Center features 12 state-of-the-art meeting rooms, a 350-seat auditorium equipped for simultaneous translation, a large dining room seating up to 200 guests, and a Business Center.

Recent enhancements include the replacement of the Center's roof and skylights. The Notre Dame Conference Center is the only facility in the area certified by the International Association of Conference Centers.

For more information on booking an event, call 631-6691 or visit conferences.nd.edu.



Notre Dame Conference Center atrium



INTERNAL COMMUNICATIONS

Tools to Keep You Informed

NDWorks



NDWorks, the faculty/staff newspaper, is published by University Communications. The deadline for copy is 10 business days before the following 2012-2013 publication dates: July 19, Aug. 16, Sept. 13, Oct. 11, Nov. 8, Dec.

6, Jan. 10, Feb. 14, March 21, April 18, May 23. Download a PDF of the current issue or obtain PDFs of back issues by clicking the "NDWorks Archive" tab on today.nd.edu.

Today@ND



Today@ND (today.nd.edu), the University's internal communications website for faculty and staff, offers news and features, University-wide announcements and other information of interest to faculty and staff.

The Week@ND



The Week@ND, a summary of the week's events and opportunities, arrives by email every Monday morning. The latest issue is also available on **Today@ND**, today.nd.edu. Submit events to theweek@nd.edu by noon Thursday of the week before the event.

Calendar



The University Calendar, calendar.nd.edu, provides a list of campus events by day, week or month, as well as by category (arts and entertainment, athletics). Categories or individual events may be downloaded directly into your Outlook or Google calendar. We welcome your comments and suggestions!

Contact NDWorks/Today@ND Managing Editor **Carol C. Bradley**, 631-0445 or bradley.7@nd.edu, or submit a comment or story idea via the "Contact Us" tab on **Today@ND**.

Like Us!

Nitesh Chawla receives 2012 IBM Watson faculty award



MATT CASHORE

Chawla

Research focuses on intersection of big data and health care

BY NINA WELDING, ENGINEERING

When IBM created its cognitive computer system, Watson, it was projecting far into the future but not as far as one might think.

Watson's deductive abilities and incredible data retrieval speed allow it to sift through vast amounts of data and process information in ways similar to those of the human brain, including an understanding of basic language as well as some human nuances.

But the machine's purpose was more than mimicry; it was created to access and analyze data, helping organizations identify trends and operational hiccups while projecting possible outcomes.

In January 2011, the world witnessed Watson in action as viewers watched the TV game show "Jeopardy!" During a tournament-style competition, Watson beat some of the greatest "Jeopardy!" contestants to grace the screen, but what was more important is that Watson showed the enormous potential offered by computers in the areas of natural language recognition, data analysis and the processing of solutions.

These are the same analytical skills companies that want to become bigger, stronger, faster and leaner will be demanding of their employees in the next eight to 10 years. And they

are the same skills IBM is seeking to inspire in the next generation of engineers and scientists through its support of the IBM Watson Solutions Faculty Awards.

The IBM Watson Solutions Faculty Awards recognize individuals who are on the cusp of the next big trend in computing—big data and analytics—and are introducing that information to their students via innovative curricula.

Among the 10 instructors recently named recipients of the 2012 IBM Watson Solutions Faculty Award is **Nitesh Chawla**, the Frank M. Freimann Collegiate Associate Professor of Computer Science and Engineering and director of both the Interdisciplinary Center of Network Science and Applications and the Data, Interference, Analytic and Learning Lab at the Notre Dame.

Like the other recipients, Chawla is being honored this month for development of a unique program that combines business and technical skills that support use of big data and analytics in finding solutions for some of society's biggest issues.

Chawla's winning proposal focuses on the intersection of big data and health care innovation and how best to present those issues to students, who will become the next generation of innovators.

The availability of the digitized data that already exists in many health care systems across the country offers the opportunity to explore and take advantage of novel large-scale analytics that can be used in patient-centric health care.

This data and smart analytics, when employed by cognitive systems such as Watson, could lead to improved outcomes and better management of chronic diseases; proactive and preventive treatment strategies; a reduction in health care costs through the empowerment of patients and physicians; and pre-emptive measures such as lifestyle adjustments and accountability in care.

This "smarter" continuum—from technology to application—will prepare students to better meet today's health care challenges. Students will not only learn data mining/machine learning concepts, but they will also develop insights about the medical evaluation process, the physician-patient adoption of technology and the societal implications.

According to Chawla, this integrative education and its application to health care, especially when aligned with the use of cognitive systems such as Watson, are critical as the foundation for cost-effective, patient-centric care of the future.

Chawla's area of research is data mining and machine learning. He is also at the frontier of interdisciplinary applications with innovative work in health care analytics, climate and environmental science and network science. His research in data-driven personalized health care is focused on patient-centered disease diagnoses and management.

Chawla is the recipient of multiple awards for research and teaching innovation, including a National Academy of Engineering New Faculty Fellowship and a number of best paper awards and nominations.

He currently serves as the chair of the IEEE CIS Data Mining Technical Committee and also serves on a number of editorial boards and organizing/program committees for conferences. He is a fellow of the Reilly Center for Science, Technology and Values and the founder of Aanalytics Inc., a startup focused on big data and analytics, housed at Innovation Park at Notre Dame.

We're more passive than we predict when sexually harassed, study shows

Why observers condemn victims

BY SHANNON CHAPLA, PUBLIC RELATIONS



MATT CASHORE

Tenbrunsel

Sexual harassment is devastating in and of itself for its victims, but new research shows there can be an even more insidious and troubling consequence that goes along with it.

When confronted with sexual harassment, we don't stand up for ourselves to the extent we believe we will, and because we use false predictions as a benchmark, we condemn others who are passive in the face of sexual harassment, according to a new study co-authored by **Ann Tenbrunsel**, professor of business ethics.

In "Double Victimization in the Workplace: Why Observers Condemn Passive Victims of Sexual

Harassment," forthcoming in *Organization Science*, Tenbrunsel and researchers from the University of Utah and Brigham Young and Northwestern



universities conducted five studies that explored observers' condemnation of passive victims.

Pointing to the 1991 Senate confirmation hearings for Clarence Thomas' appointment to the Supreme Court, the researchers note that Anita Hill testified she had been sexually harassed by Thomas during his tenure as head of the Equal Employment Opportunity Commission. She testified that despite being harassed numerous times years before, at no point did she confront Thomas about his behavior or take any action against the harassment. Her claim of repeated sexual harassment and perpetual inaction led to public suspicion with and condemnation of Anita Hill.

Far from being an isolated incident, the case illustrates a trend that prevails even today.

"If we can increase the accuracy of our predictions and realize we won't stand up for ourselves as often as we would like to think, we will be less condemning of other victims," Tenbrunsel says.

In the first two studies, observers predicted they would be more confrontational than victims typically are, and this led to greater judgment of other passive victims, including unwillingness to work with them and to recommend them for a job.

The third study identified the failure to consider what may motivate victims to be passive, and the final two studies reduced condemnation of passive sexual harassment victims by highlighting their likely motivations at the time of the harassment and by having participants recall a past experience of their own when they did not act in the face of intimidation in the workplace, a situation related to but distinct from sexual harassment.

The results from these studies add insights into the causes and consequences of victim condemnation and help explain why passivity in the face of harassment—the predominant response—is subject to so much scorn.

Tenbrunsel, the Rex and Alice A. Martin Professor of Business Ethics at the Mendoza College of Business and director of the University's Institute for Ethical Business Worldwide, is co-author of the book "Blind Spots: Why We Fail to Do What's Right and What to Do About It." She specializes in decision making and negotiations, with a particular emphasis on ethics.

Consortium of universities will offer for-credit online education

Semester Online will be first of its kind

A group of the nation's leading universities, including Notre Dame, Brandeis University, Duke University, Emory University, Northwestern University and the University of North Carolina at Chapel Hill, has announced plans to launch an innovative new online education program, **Semester Online**, beginning in fall 2013.

The program will be the first to offer undergraduate students the opportunity to take rigorous, online courses for credit from a consortium of universities. The program is

delivered through a virtual classroom environment and interactive platform developed by 2U, formerly known as 2tor.

Initial Semester Online courses will feature the same faculty and curricula as brick-and-mortar counterparts. Through a state-of-the-art virtual classroom, students will participate in discussions and exercises, attend lectures and collaborate with peers while being guided by renowned professors—as close to an on-campus class experience as is available online.

"By making for-credit online undergraduate coursework a reality for these top schools, Semester Online represents an important

milestone for undergraduate education, one that will influence the wider adoption of for-credit online learning across all of higher education," says Chip Paucek, co-founder and CEO of 2U. "Semester Online demonstrates 2U's mission to help great schools go online and provide high-quality learning experiences for credit, empowering students to continue their education as they follow their ambitions, anywhere."

For more information, visit semesteronline.org.

EVP initiative highlights business intelligence

Benefits seen across the University

BY GENE STOWE, FOR NDWORKS

A university-wide business intelligence initiative, the Data Driven Decision Making program, is accelerating access to meaningful, user-friendly data that can mean smarter choices on topics from promoting retirement plan contributions to boosting graduation rates.

The focus on metrics, initiated by the Office of the Executive Vice President, is part of a broader “Big Data” trend in business, government and other fields that mines stored records for precise, targeted information that can provide enhanced service and a competitive edge.

The Notre Dame effort was recently highlighted in the Research Bulletin of the Educause Center for Applied Research.

“What we’re doing is called business intelligence or data analytics—how do you use, tap and unlock the data you have in your existing transactional systems so people can use that on a day-to-day basis to make better

informed decisions?” says **Todd Hill**, interim director of Academic and Administrative Services in the Office of Information Technologies.

“What we’re trying to do is give the decision makers real-time access to that information that they don’t already have readily available to them now.”

The data is stored, but access can be time-consuming. A survey showed that people spent 80 percent to 90 percent of their time gathering data with only 10 percent to 20 percent left for analysis and decision making—rates that the new system aims to reverse by generating understandable information quickly.

“They have a lot of transactional reporting,” says **Brandon Burke**, business intelligence and portal manager, such as records of employees with certain characteristics. “What they didn’t have before the project was a good way to visualize that data so they’re not getting this ream of paper



MATT CASHORE

Hill

and a long list of people. You can make better decisions when you have data that’s easily understood.”

The technology has application across the campus. For example, in human resources, Hill says, “What if we want to know where we are growing at the University headcount-wise? Where are we having turnover? Is that turnover acceptable? Is it more pronounced in some area more than

others? If so, maybe there’s an issue there.”

An analysis of contributions to the voluntary retirement plan unexpectedly revealed that women participate more than men. “Those sorts of things are important,” he says. “HR can adjust communications for more participation if they can find out the characteristics of those nonparticipants, rather than blanket the campus.”

Student data in the registrar’s office can reveal trends in choices of academic major and help prepare sufficient classes, or provide guidance that can improve graduation rates by identifying common traits of those who don’t complete degrees.

“Everybody within the University can benefit from this,” Hill says. “You can see how you can use this data quite a bit. Obviously you can use it in the financials. Are we being good stewards of our financial assets, whether the endowments or unrestricted funds?”

The program could even measure for Development whether a No. 1 football ranking increases donor giving.

BLUE MASS

The annual Blue Mass for police, firefighters, emergency medical technicians and their families was celebrated Nov. 15 in the Basilica of the Sacred Heart. President Rev. John I. Jenkins, C.S.C., presided, with Rev. Brad Metz, C.S.C., associate director for campus vocations, serving as homilist.

The Blue Mass is named for the predominant color of uniforms worn by police officers and firefighters nationwide. It was first celebrated at Notre Dame for the victims of the terrorist attacks of Sept. 11, 2001, and is continued to honor them and police officers, firefighters and rescue workers who have died while serving and protecting others.



MATT CASHORE

Traveling for business? Check out travelND

Online booking system saves time and money

BY CAROL C. BRADLEY, NDWORKS

When traveling on University business, booking through travelND’s online Concur system offers many advantages, says **Vaibhav Agarwal**, director of procurement services.

TravelND (travel.nd.edu) offers users 24/7 access to booking air, hotel and auto reservations, with the University’s special contract pricing built in. Flight options include Southwest Airlines, unavailable on other travel sites. In addition, if you’re stranded while traveling or need to change a reservation, Anthony Travel offers full support of all online bookings.

One of the many advantages to booking in travelND’s Concur system is that the itinerary detail is available to drag-and-drop into an expense report. The site is also mobile enabled, with smartphone apps that allow both booking and expense reporting.

Travelers have a choice of payment options that include the use of FOAPAL (for airline flights only), a University travel card or a personal credit card. Personal rewards such as frequent flier miles can be stored in your profile and applied to your reservation.

Now available free to all University employees is TripIt Pro, a personal travel assistant that organizes travel, tracks loyalty points and can even send

out flight alerts. The next time you log into travelND’s Concur system, look for TripIt on the home page and register. TripIt Pro is also available for iPhone, iPad, Android and Blackberry and can be used for personal trips. For more information, visit travel.nd.edu/tripitpro.

While providing clear benefits to those traveling on University business, the system also benefits the University through savings in utilizing contract pricing, in paper and imaging costs, and in ease of auditing, records retention and tracking policy compliance, says **Paul Van Dieren**, assistant controller for payment and procurement services.

travelND
Simple > Smart > Swift > Service

NEWS BRIEFS

HOLLAND RECEIVES SHEEDY AWARD

Peter Holland, professor of English and McMeel Chair in Shakespeare Studies, is the 2012 recipient of the Sheedy Excellence in Teaching Award, presented annually to an outstanding teacher in the College of Arts and Letters.

Holland, one of the central figures in performance-oriented Shakespeare criticism, served as director of the Shakespeare Institute at Stratford-upon-Avon before coming to Notre Dame in 2002.

He is editor of Shakespeare Survey as well as a number of other series. Among his books are “English Shakespeares: Shakespeare on the English Stage in the 1990s” and a major study of Restoration



MATT CASHORE

Holland

drama, “The Ornament of Action.” He has also edited many Shakespeare plays, including “A Midsummer Night’s Dream” for the Oxford Shakespeare series.

In 2007, he completed publication of a five-volume series of collections of essays titled “Redefining British Theatre History.” In 2007-2008, he served as president of the Shakespeare Association of America. He was elected an honorary fellow at Trinity Hall, his alma mater and one of the 31 colleges that comprise the University of Cambridge.

The Sheedy award was founded in 1970 in honor of Rev. Charles E. Sheedy, C.S.C., who served as dean of the College from 1951-69, and acknowledges a faculty member who has sustained excellence in research and instruction over a wide range of courses. This individual must also motivate and enrich students using innovative and creative teaching methods and influence teaching and learning within the department, college and University.

UNIVERSITY CLOSED DEC. 22 THROUGH JAN. 1

The University will be closed for the Christmas and New Year’s holidays from Saturday, Dec. 22, through Tuesday, Jan. 1. Before leaving campus, please make sure computers and office lights are turned off, windows are securely closed and refrigerators cleaned out. We’ll see you back on campus Wednesday, Jan. 2!

Got a story idea?
Send it to ndworks@nd.edu

Migrating Great Lakes salmon carry contaminants upstream

Research reveals pollutants, including PCBs and breakdown products of DDT

BY CAROL C. BRADLEY, NDWORKS

Be careful what you eat, says stream ecologist **Gary Lamberti**.

If you're catching and eating fish from a Lake Michigan tributary with a strong salmon run, the stream fish—brook trout, brown trout, panfish—may be contaminated by pollutants carried in by the salmon.

Research by Lamberti, professor and chair of biology, and his laboratory has revealed that salmon, as they travel upstream to spawn and die, carry industrial pollutants into Great Lakes streams and tributaries. The research was recently published in the journal *Environmental Science and Technology*.

It's a problem inadvertently created by people with good intentions, he notes.

"Most people don't realize that salmon are a non-native species in the Great Lakes," he says. "They were introduced to control alewives—another non-native fish species."

Although salmon fed on and contained the alewives—and have become important to sport fishing—there were unintended consequences. That's because of a lengthy history of industrial pollution of the Great Lakes.

"All the Great Lakes have some level of pollution," says Lamberti, "especially near cities—Chicago, Detroit, Cleveland. There are far fewer pollutants now than over the past century, but many are persistent. There are hot spots, and Lake Michigan has a lot of them—heavy metals, mercury, organic pollutants like PCBs."

PCBs (polychlorinated biphenyls) come from fluids in older electrical transformers. Also present is DDE (dichlorodiphenyldichloroethylene), a breakdown product of the banned insecticide DDT, and PBDEs (polybrominated diphenyl ethers). PBDEs, notes Lamberti, are flame retardants used in furniture, mattresses and children's clothing. "They wash out when you do the

laundry."

Even intentionally introduced species such as Pacific salmon can result in unintended consequences for the ecosystem and the environment.

Salmon acquire pollutants through the lake food chain. When they are young, they feed on invertebrates—worms and insect larvae. As they grow larger, salmon consume more and more fish, such as alewives—which have also picked up pollutants through invertebrates they eat, which have picked up pollutants from algae and bacteria.

Salmon are a fatty fish, and these polluting chemicals are particularly "sticky," Lamberti says. "They are lipophilic—they absorb into fat tissue."

The consequence is that the salmon magnify the pollutants as they move up the food chain. "Salmon are longer lived, eat more, and the pollutants are then bio-concentrated."

The concern is that salmon are naturalized to many tributaries of the Great Lakes. "And it's a one-way street for them," Lamberti says. "They spawn, die in the stream where they spawn, and then leave their contaminant load in the stream. Stream fish eat salmon eggs, and may also eat carcass tissue as they decompose."

Fish in streams and tributaries with large salmon runs—fish that never go out into the lake, he notes—show contaminant levels very similar to that of Great Lakes salmon.

"Let's keep in mind," he adds, "there are FDA advisories for pregnant women and children on the risks of eating large Great Lakes fish, because of the danger of chemical contaminants."

"But there are no warnings for stream fish—that's the specter. If you're eating fish from a stream with a lot of salmon, you might as well be eating the salmon. I would err on the side of caution when eating any fish from a salmon river. Either that or harvest fish only upstream of where salmon spawn."

For comparison purposes, Lamberti's research analyzed the tissue of fish upstream from where



salmon spawn and die.

"The upstream section of the same river was not contaminated. Below the salmon, the river had measurable levels of contaminants. There's no other way for the contaminants to get there but the salmon. Water doesn't flow uphill."

The conclusion?

Although salmon are an economic benefit to the Great Lakes and perform important ecological functions (such as controlling the population of alewives), we need to consider the impact of salmon on streams where they spawn.

"If we want to remove a dam on a

river, and that will allow salmon to move upstream, we need to realize that the salmon will carry pollutants with them and disperse them into the food web," Lamberti says.

"In sensitive areas with a lot of native fish, we might want to prevent salmon from moving upstream. And in the Great Lakes, maybe we should consider restoring the native populations of lake trout and whitefish rather than encouraging more salmon."

At top, stream ecologist Gary Lamberti researches stream ecology in Alaska and in the Great Lakes region. Above left, salmon migrate upstream to spawn and die. Above right, salmon eggs pumped from the stomach of a brown trout. Bottom, chinook and coho salmon.

Protecting the Great Lakes

Grant will help develop early-detection strategies for high-risk invasive species

BY WILLIAM GILROY, PUBLIC RELATIONS

The University has received a \$599,931 Environmental Protection Agency grant under the Great Lakes Restoration Initiative (greatlakesrestoration.us/) to develop technologies for the early detection of invasive species using environmental DNA.

Environmental DNA refers to all types of tissue samples collected by filtering water from aquatic environments, such as sloughed cells, microscopic organisms or extracellular DNA from degraded tissues. This process, in combination with species-specific molecular genetic tools, has been successfully used to detect Asian carp.

In the present grant, the efficacy

of environmental DNA will be tested across a diverse group of high-risk invasive species threatening the Great Lakes region, including mussels, snails, crayfish and plants such as Hydrilla. The research will develop novel genetic markers for environmental DNA detection of these high-risk invasive species.

Research under the grant funding also will focus on where best to detect each invasive species in aquatic environments, since they differ ecologically in their habitats. For example, crayfish may spend more time toward the bottom of the water column, and fish toward the surface.

Another focus of the research will be on the longevity of the environmental DNA signal, which will test how long detection can be useful after an invasive species has moved on.

Scott Egan, a research assistant professor with Notre Dame's Advanced Diagnostics and Therapeutics initiative, is lead

researcher for the project, which also includes researchers from the Department of Biological Sciences, Environmental Change Initiative and Department of Physics.

Physicists **Carol Tanner** and **Steven Ruggiero** collaborate with Notre Dame biologists to use molecular genetic tools and a new technique called laser transmission spectroscopy to rapidly detect species-specific DNA. This technology, which fits in a small suitcase and can run off a car's battery, will be tested as a method to generate early detection in the field at sites where invasive species are suspected.

The Great Lakes Initiative grant will fund research in labs, at the new Notre Dame Linked Experimental Ecosystem Facility at St. Patrick's County Park and in field experiments in aquatic environments known to have invasive species as well as those that have not yet shown evidence of an invasion.



Zebra mussels

Team Irish Awards



Energy conservation and sustainability have increasingly become the focus of colleges and universities everywhere.

The University continues the work it began decades ago to make a difference in reducing emissions, conserving resources, and creating awareness through education and outreach. Team Energy Conservation consists of staff members from the Utilities Department Engineering Group, Building Controls Group and the Office of Sustainability who have worked together in support of the common goal of conservation. Together, they have implemented several initiatives that have made both the University and the world better places.

Upgrades to the lighting and HVAC systems in more than 70 buildings have guaranteed savings in both costs and energy. Carbon and other emissions have been considerably reduced due to the use of natural gas rather than coal. All new campus buildings are designed and constructed to LEED NC3.0 Silver specifications or better.

Electricity meters, along with real-time Web-based dashboard systems, were installed in the residence halls to help monitor usage. This also helped create awareness and promote some friendly rivalry between the dorms through the Kill-a-Watt Energy Competition.

Team Energy Conservation will continue its commitment to seek out new technologies, ideas and information. Its goals remain aligned strategically with the University's vision, while balancing the environmental, social and economic impact of energy systems. Because of this, members are recognized today with the Presidential Team Irish Award. They consistently demonstrate the core values of teamwork, integrity, accountability, leadership in mission and leadership in excellence.



Team Energy Conservation members include:

Chris Banach	Erin Hafner	Paul Shepard
Chris Blazi	Glenn Hayes	Dan Shoop
Jamey Bontrager-Singer	Mark Hummel	Rich Warner
Tricia Dalenberg	Justin Kurtich	Robert Warner
Tim Golichowski	Rachel Novick	

Political science course draws on real-time research

Adapting to climate change

BY CHRIS MILAZZO,
ARTS AND LETTERS

Bringing her latest research into the classroom, **Debra Javeline**, associate professor in the Department of Political Science, is helping undergraduate students make a connection between politics and biology.

Javeline's new course, "The Politics of Adapting to Climate Change,"



Javeline

was born of the work she is doing with Notre Dame biologists **Jessica Hellmann** and **Jason McLachlan** to measure the scientific community's opinions about managed relocation, a developing mode of wildlife conservation that involves moving threatened species from their natural but changing habitats to new, more climatically suitable ones.

"What's interesting is that because the class is based on real-time research, I don't always have an answer for students," Javeline says. "I can't say, 'Having done all this research, I know that managed

relocation works and that it's a good idea."

"But it's a great starting point for conversation," she says.

Taking a new direction

Javeline, an expert in survey research, has spent much of her career focusing on mass political behavior and the politics of post-Soviet and other post-communist regimes. About four years ago, Hellman and McLachlan sought her survey expertise for their adaptation to climate change initiative, and the "side project" soon became a major interest.

"Climate change adaptation—the reduction of vulnerability to climate change—is perhaps the single most understudied *political* world problem," Javeline says, "and I would like to devote a significant portion of my future scholarship to correcting this deficit."

To further her work in this area, she has received grants from the National Science Foundation as well as the College of Arts and Letters' Institute for Scholarship in the Liberal Arts.

She was also awarded an Andrew W. Mellon Foundation New Directions Fellowship, which assists faculty members in the humanities and social sciences "who seek to acquire systematic training outside their own areas of special interest." The fellowship allowed her to expand her knowledge base by taking courses across Notre Dame, tackling everything from advanced biology and environmental risk to environmental law and climate change law.

As a political scientist, Javeline

says she is deeply interested in the political ramifications of climate change, and her new course focuses on just those sorts of questions.

She draws on her research with Hellmann and McLachlan, as well as work from other scholars, to form the course's core. Her students then study this material, and analyze it from multiple angles—including that of a political scientist and a policy maker.

Students in the class also get the mind-opening opportunity to engage with research outside their primary discipline.

"I don't think many political scientists have occasion to think this much about science and how you need to bring science into policy," Javeline says.

Approaching a complex puzzle

Senior **Chelsea Nobriga**, a major in political science and environmental science, says the class has given her new insights into the understudied intersection between politics and climate change.

"I really have enjoyed getting a different perspective on climate change from an unlikely source: a political scientist," she says. "There needs to be more interdisciplinary



collaboration surrounding climate change so that meaningful and sustainable methods to adapt to climate change can be implemented."

Sophomore **Christina Gutierrez**, who studies political science, French and Italian, says the course has opened her eyes to the complexity of adapting to climate change.

"I've learned how incredibly difficult decisions and policies can be to instate, particularly as they relate to the short-term and long-term effects of climate change."

The real-time aspect of the class is particularly exciting, she adds. "We're not depending on textbooks that were published years ago for information, but rather up-to-date documents that we know are being used to make decisions in policy right now in the

U.S. and the rest of the world."

Javeline says that the questions the course poses are difficult and that straightforward answers are hard to come by, if not impossible. But for students, she says, learning how to thoughtfully consider these problems is critically important.

"This is hard. It is a huge puzzle, and no one has easy answers," she says. "But my students now have a foundation to engage these questions."

"Policymakers don't always have evidence at their disposal, and sometimes they have to make decisions anyway. The class is a place to discuss that: how you make decisions in positions of uncertainty."

Learning at Work academy gives employees opportunity for development



Reinhardt

Classes are held on campus

BY BRITTANY COLLINS, NDWORKS

University employees who want to pursue personal and career development can enroll in a program in which they can earn a degree from Ivy Tech, complete a GED or become fluent in English—without leaving campus.

The **Learning at Work Skills Academy**, offered by the Office of Human Resources, is a multi-approach service that seeks to enhance individual success while strengthening the talent base for the University. Instruction through the Learning at Work service is provided by outside educational institutions, but all classes are conveniently held on campus.

Employees can take advantage of three programs within the academy: the ENL (English as a New Language) program, the GED Preparation program and the Ivy Tech Associate Degree program.

The ENL program, held in the Mason Support Services Center's

Training Room, is for non-native speakers of English who want to increase their fluency in speech and writing and enhance their ability to communicate and perform effectively in their work environment.

The GED Preparation program, also held at the Mason Center, provides University employees who do not have a high school diploma with the opportunity to refresh forgotten academic skills or learn the knowledge necessary to complete the GED examination. The Learning at Work program covers the cost of taking the GED exam, up to two attempts.

The Ivy Tech Associate Degree program, typically held in DeBartolo Hall, offers an accelerated curriculum to enable regular full- and part-time employees to earn a technical certificate or an associate degree in business administration.

Patti Reinhardt, program assistant at the Gigot Center for Entrepreneurship, graduated with an Ivy Tech degree after enrolling in the program. She is currently pursuing a bachelor's degree in communications

from Trine University.

"I get choked up when I think about how much the University has invested in me," she says. "I have participated in various programs that have aided in both my personal and professional development. There are so many resources available to us, as employees of this University, that it would behoove us all to keep abreast of these resources and take advantage of those opportunities that appeal to you."

A major feature of the Learning at Work Skills Academy is that the programs are offered to employees at no charge. Course materials are provided.

Registration for all three programs is open now through the beginning of January. Employees who are interested in the academy can contact **LaTonia Ferguson**, learning and organizational development consultant for the Office of Human Resources, at 631-5679 or lfergus2@nd.edu.

CAROL C. BRADLEY

ATTEND AN INFORMATION OPEN HOUSE

Ivy Tech
Thursday, Dec. 13
in DeBartolo Hall 119
2-5 p.m.

GED and ENL
Tuesday and Wednesday
Dec. 18 and 19
3-5 p.m.
Grace Hall
Lower Level
Training Room

SERVICE ANNIVERSARIES

The University congratulates the following employees who celebrate significant service anniversaries in December, including 35-year employee **Susan R. McGonigal**, athletics.

25 years

LinDa L. Grams, philosophy

20 years

Barbara A. Panzica, School of Architecture

15 years

Jill R. Bodensteiner, athletics

Hal R. Culbertson,

Kroc Institute

Allen F. Utterback,

College of Science

Kevin E. Young,

chemistry and biochemistry

10 years

Jennifer L. Lechtanski,
Nanovic Institute

Jeanette Mattei, psychology

Victoria L. Trimberger,
development

Joan C. Varga,
Investment Office

NEW EMPLOYEES

The University welcomes the following employees who started work in October:

Marta R. Brummell,

First Year of Studies

Ibrahim Y. Chaaban and

Joseph Lott,

Customer Support Services

David Chaudoir and

Bridget Moreno, development

Sheila F. Christopher

Gokkaya, ND Environmental

Change Initiative

Stephen L. Goen and

Kelly Todd, security

Adam Henkaline,

Army ROTC

Stephen Hilburn, Utilities

Alec W. Hipshear, AgencyND

Karoline E. Jambor,

Accounting and Financial

Services

Kim Johnson,

St. Michael's Laundry

Adam Kruszewski,

Information Security

Margaret M. Lloyd,

Keough Institute

Katharine Lyvers, Reckers

Jake L. Marmul, women's lacrosse

Slawomir Nowosad,

Nanovic Institute

Morgan R. Oiler, psychology

Tara A. O'Leary and

Alexander Papsion,

Hesburgh Libraries

Emily R. Sipos-Butler,

Kroc Institute

Stacey A. Stewart,

film, television, and theatre

Eric Szajko, Au Bon Pain

Suzanne T. Thoren, Mendoza

Paul G. Ullrich, registrar

Paul Van Ness, DeBartolo

Performing Arts Center

WE'RE #1!



PHOTOS: MATT CASHORE

Lighting the #1 sign on the roof of Grace Hall? Somebody has to do it. And after the win against USC on Nov. 24, the ones who turned on the lights were (at right) Todd Weaver, from Koontz-Wagner Electric Co., and (center) building systems technician Jim Panagiotis. Keeping a watchful eye (at left) is NDSP Officer Richard Bliley.

The 8-foot sign, originally placed outside Moreau Seminary after the 1973 national championship football season, remains lit as long as any Irish sports team is ranked No. 1.



THE FIGHTING IRISH

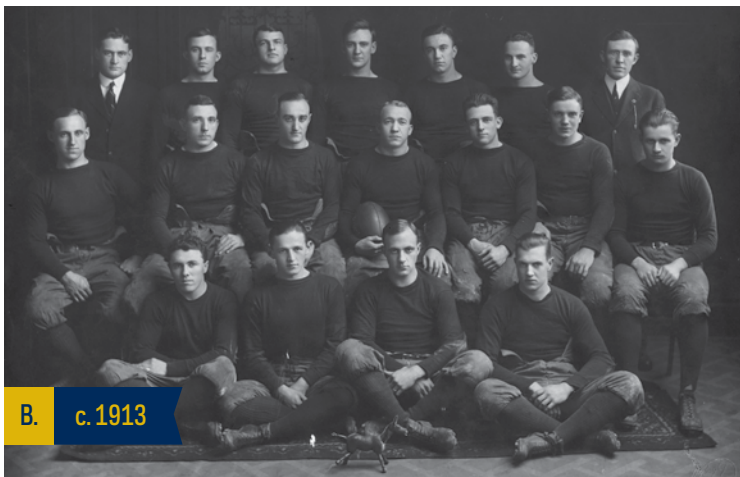
Undefeated seasons, legendary coaches



A. c. 1924



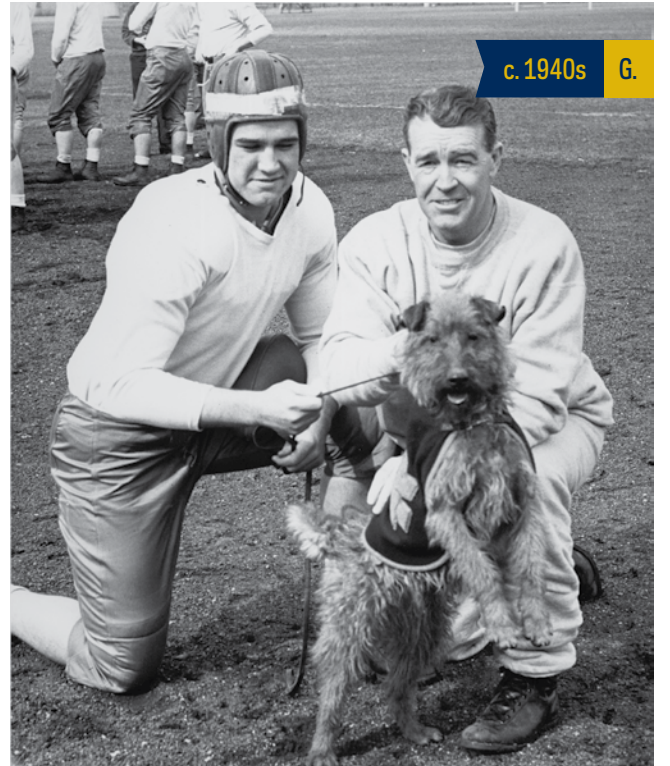
D. 2012



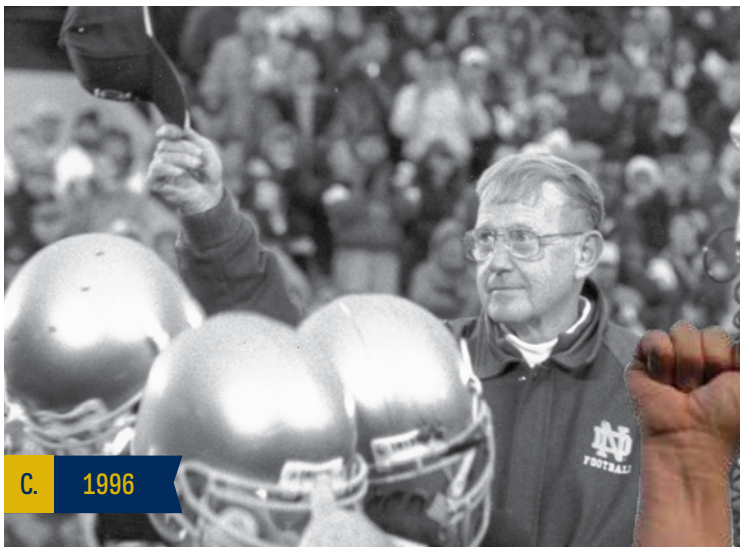
B. c. 1913



E. 1973



c. 1940s G.



C. 1996



1968 F.

A. Coach Knute Rockne (1918-1930) at practice with The Four Horsemen, c. 1924—Harry Stuhldreher hands the ball to Don Miller; Jim Crowley is behind Stuhldreher; Elmer Layden is behind Miller. Rockne celebrated undefeated seasons in 1919, 1920, 1924, 1929 and 1930; the Irish were national champions in 1924, 1929 and 1930.

B. The 1913 football team poses with a toy mule, possibly representing the team's 35-13 win over Army at West Point on Nov. 1. The team, coached by **Jesse Harper (1913-1917)** ended the season 7-0. In the center of the second row is Team Captain Knute Rockne. Photo by Bagby Photo Co.

C. Coach Lou Holtz (1986-1996) with players on the field after his last home game, ND vs. Rutgers. Holtz's 1988 team ended the season 12-0 and went on to win the national championship against No. 3 ranked West Virginia Mountaineers at the Fiesta Bowl in Tempe, Ariz.

D. 2012 was a special year for the Irish, beginning with the season opener in Dublin and finishing undefeated, 12-0. The team will play for the national championship at the Orange Bowl in January.

E. Coach Ara Parseghian's 1973 team ended the season 11-0 and won the national championship with a 23-24 win against Alabama at the Sugar Bowl. Above, Parseghian and legendary Alabama coach Paul "Bear" Bryant talk on the sidelines.

F. Quarterback Terry Hanratty, #5, talks with **Coach Ara Parseghian (1964-1974)** on the sidelines of the ND vs. Northwestern game in 1968; the team took the national championship in 1966 and 1973.

G. Coach Frank Leahy (1941-43, '46-53) with an unidentified player and the Irish terrier mascot, possibly Clashmore Mike, c. 1940s. Leahy's teams were 9-0 in 1947 and 10-0 in 1949 and were national champions in 1943, 1946, 1947 and 1949.

H. Brian Kelly ended his first season as coach (2010) with an 8-5 win-loss record. At left, Kelly celebrates his first victory as coach, against Purdue.

H. 2010

