

Research Enterprise

June 17, 2015

The Office of the Vice Chancellor for Research (OVCR) publishes the RESEARCH ENTERPRISE to keep the academic community and the community at large informed about research activities, opportunities and development on the IUPUI campus.

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If you have a news item or recent noteworthy research-related achievement that you would like to share, please see the [Research Enterprise Submission Guidelines](#).

Please be aware that not all news items will be deemed appropriate or timely for publication, but each item will be carefully considered.

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FEATURE STORY

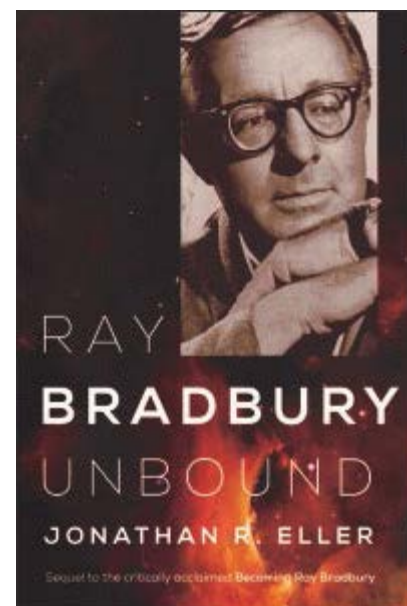
Professor publishes second volume of authoritative biography

Fully established in the slick magazines, award-winning, and on the brink of placing *Fahrenheit 451* in the American canon, Ray Bradbury entered the autumn of 1953 as a literary figure transcending fantasy and science fiction. In *Ray Bradbury Unbound*, Jonathan R. Eller continues the story begun in his acclaimed *Becoming Ray Bradbury*, following the beloved writer's evolution from a short story master to a multi-media creative force and outspoken visionary.

Drawn into screenwriting by the chance to adapt *Moby Dick* for film, Bradbury soon established himself in Hollywood's vast and overlapping film and television empires. The work swallowed up creative energy once devoted to literary pursuits and often left Bradbury frustrated with studio executives.

Yet his successes endowed him with the gravitas to emerge as a much sought after cultural commentator. His passionate advocacy in *Life* and other media outlets validated the U.S. space program's mission -- a favor repaid when NASA's astronauts gathered to meet Bradbury during his 1967 visit to Houston. Over time, his public addresses and interviews allowed him to assume the role of a dreamer of futures voicing opinions on technology, the moon landing, and humanity's ultimate destiny.

Eller draws on many years of interviews with Bradbury as well as an unprecedented access to personal papers and private collections to portray the origins and



Finalist for the Locus Award,
Nonfiction category, 2015

outcomes of Bradbury's countless creative endeavors. The result is the definitive story of how a great American author helped shape his times.

"A thorough documentation of Bradbury's career. . . . This warm, informative biography depicts him as a thoughtful and disciplined writer who helped make science fiction a respected literary genre."--*Kirkus*

"Eller captures the joy of creations that new forms allowed Bradbury, such as the intensely visual interpretation of *Moby Dick* that he wrote for director John Huston. . . . Fans who know Bradbury only for his fiction are likely to enjoy this diverse look at his work and creative process."--*Publishers Weekly*

"Intimate, conscientious, and triumphant, a truly profound examination of Bradbury's accomplishments and legacy. Highly recommended for all sf lovers and those with an appreciation for non-fiction and literature."--*Library Journal*

"Engaging. . . . Eller's second volume of Bradbury's biography is ultimately a melancholy and cautionary tale."--*Washington Post*

"Few contemporary authors have been written about as extensively as Ray Bradbury, but no one has surpassed Jonathan Eller. In his previous study, *Becoming Ray Bradbury*, he captured the odd nature of Bradbury's imagination perfectly in the context of his life and age -- keeping a myriad of influences and ambitions in perspective. With the publication of *Ray Bradbury Unbound*, Eller not only confirms his position as the great comprehensive Bradbury scholar. He has also written what may be the best single account of a major science fiction author's rise to fame and achievement."--Dana Gioia, author of *Pity the Beautiful* and former chairman of the National Endowment for the Arts

Jonathan R. Eller is a Chancellor's Professor of English at Indiana University-Purdue University in Indianapolis, the senior textual editor of the Institute for American Thought, and director of the Center for Ray Bradbury Studies at IUPUI. *Becoming Ray Bradbury* was a runner-up for the 2011 Locus Award for best nonfiction book in the science fiction and fantasy field.

ANNOUNCEMENTS

IU and Regenstrief investigators honored by American Geriatrics Society

Indiana University Center for Aging Research and Regenstrief Institute investigators Michael LaMantia, M.D., MPH, and Kathleen Unroe, M.D., MHA, were honored by the American Geriatrics Society at its annual scientific meeting May 15 to 17.

Dr. LaMantia will receive an AGS New Investigator Award, one of only five to be presented by the national organization this year. This award honors individuals whose original research reflects new insights in geriatrics and a commitment to academics in aging. He was previously honored by the AGS with a 2010 Annual Scientific Meeting Presidential Poster Award.

Dr. LaMantia focuses on the coordination of care for older, vulnerable patients as they transition across sites of health care delivery. He has a particular interest in the care of seniors in hospital emergency departments and especially the care provided there to seniors with dementia and delirium.



Michael LaMantia, M.D., MPH

Delirium affects approximately 10 percent of older adults who seek care in the emergency department, yet it is unrecognized in the majority of cases. In 2014 Dr. LaMantia received a K23 award from the National Institute on Aging of the National Institutes of Health to support "DEEDS: Delirium Evaluation in the Emergency Department for Seniors." Also in 2014 he published an analysis of the problem in the *Annals of Emergency Medicine*.

Dr. Unroe will be named an AGS fellow, a status bestowed on AGS members who have demonstrated a professional commitment to geriatrics, contributed to the progress of geriatrics care, and are active participants in the society's activities. AGS fellows are health care providers who are dedicated to geriatrics education, clinical care and research, as well as to their own continuing professional development.

She has previously been honored by the AGS with the organization's 2003 Edward Henderson Student Award and a 2011 Annual Scientific Meeting Presidential Poster Award. Dr. Unroe currently serves as vice chair of the AGS Public Policy Committee.

Dr. Unroe is focused on health policy relevant research in the long-term nursing home care of millions of individuals, including the use of palliative care and hospice in this setting, transitions of care, and the quality of medical care in nursing homes.

She is the co-principal investigator of a long-term nursing home resident care model called OPTIMISTIC, an acronym for "Optimizing Patient Transfers, Impacting Medical Quality and Improving Symptoms: Transforming Institutional Care. OPTIMISTIC is supported by a four-year, 2012 award of \$13.4 million from the Centers for Medicare and Medicaid Services. Dr. Unroe and colleagues recently received an award from the John A. Hartford Foundation to prepare for the expansion of OPTIMISTIC. She is a co-author of several peer reviewed papers on OPTIMISTIC and of a recent editorial in the *Journal of the American Medical Directors Association* that issued a call to action for end-of-life care of older adults in nursing homes.

The American Geriatrics Society is a not-for-profit organization of over 6,000 health professionals devoted to improving health, independence and quality of life of all older people. In addition to their IU Center for Aging Research and Regenstrief Institute appointments, both honorees are assistant professors of medicine at the Indiana University School of Medicine.

IU School of Medicine Professor nabs digital media award for YouTube health program

An online video health program featuring IU School of Medicine's Aaron Carroll, M.D. received the inaugural Health Care Digital Media Award presented by the National Institute of Health Care Management Foundation.

The program, [Healthcare Triage](#), is a YouTube channel in which Dr. Carroll, director of the IU Center for Health Policy and Professionalism Research, covers health care and health policy topics for general audiences.

In a breezy, quick-cut style, Dr. Carroll describes scientific studies and data, often using engaging graphics and everyday language to convey the information to lay audiences. Entries titled "Vaccines Don't Cause Autism," "GMOs," "Doctors, Quality of Care, and Pay for Performance," and "Sometimes Faster is Better" were included in the awards submission.

"We want to translate data and evidence so that viewers can have a more



Aaron Carroll, M.D.

sophisticated and rational discussion about policy," said Dr. Carroll, a pediatrician and associate dean for research mentoring at IU School of Medicine. "For example, in our submitted episodes we used systematic reviews and meta-analyses and individual studies to describe what is known, and how we might use evidence to move forward."

The NIHCM Foundation is a nonprofit, nonpartisan organization dedicated to improving the effectiveness, efficiency and quality of the U.S. health care system by promoting new ideas from the public and private sectors, funding research, and recognizing excellence in health care journalism.

Healthcare Triage, which started in October 2013, has attracted nearly 128,000 subscribers. The show's videos have been viewed more than 6.4 million times. Stan Muller is the director and producer of Healthcare Triage, and Mark Olsen creates the show's graphics. Noted novelist John Green is the executive producer.

The NIHCM's 21st Annual Awards presentation, including the first digital media awards, was held June 1 in Washington, D.C. Other finalists in the digital media awards category included *Forbes* magazine, the online news publication *Vox*, CBS Interactive and PBS station KOED.

INSTITUTE SPOTLIGHT

Collaboration explores ways to personalize medicine

In cooperation with Eskenazi Health, the Indiana Institute for Personalized Medicine, the IU School of Medicine and the Regenstrief Institute are evaluating how genetics impact the responsiveness and efficacy of certain drugs. It is believed to be the first study of its kind to examine both the economic and clinical value of implementing personalized medicine.

Most medical treatments in use across the country today have been designed for the "average patient." As a result of this one-size-fits-all approach, treatments can be very successful for some patients but not for others. Taking into account individual differences in people's genes, environments and lifestyles, personalized medicine gives clinicians tools to better understand the complex mechanisms underlying a patient's health, disease or condition and to better predict which treatments will be most effective.

The groundbreaking study, launched at Eskenazi Health last month, will examine whether pharmacogenetic testing -- the study of the role of genetics in drug response -- is associated with improvements in clinical outcomes. In other words, the study will review whether information about a patient's genetic composition can be used to help guide a physician in determining what medications might be most effective for treating conditions such as hypertension, heart disease and diabetes. The study will target 33 drugs to also determine if there is significant association with a reduction in hospital and outpatient costs incurred over one year.

"For more than a century, our partnership with the Indiana University School of Medicine has helped to inform and advance how care is delivered across the world," said Lisa Harris, M.D., chief executive officer of Eskenazi Health. "The opportunity to now be on the leading edge of personalized medicine, with the precision that allows physicians and patients to more rapidly establish effective treatment and control of chronic conditions, is a direct result of our continued collaborative efforts to bring the best that science has to bear in improving care."

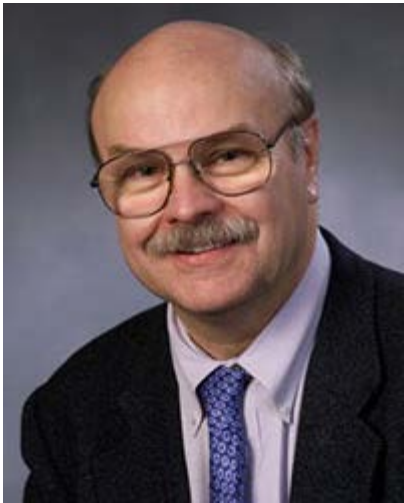
Lawmakers in Washington, D.C., are expected to consider a funding proposal from the White House later this year to invest millions of dollars in personalized medicine through research and translational sciences.



Lisa Harris, M.D.

The two-year study at Eskenazi Health's main campus will enroll a total of 6,000 patients, with 2,000 patients assigned to a pharmacogenetic testing arm and 4,000 to a control arm of patients who will be followed, but not tested.

Patients will be followed for one year. Eskenazi Health patients from both outpatient and inpatient areas of the health system as well as emergency department patients may be asked to participate if they are prescribed one of the 33 medications identified. Patients selected for the testing arm will receive a blood draw that will evaluate the most common type of genetic variations that exist within 16 specific genes. The blood draw is the only interaction patients will have with the study unless a second medication is prescribed during the course of the study period. David Flockhart, M.D., Ph.D., director of the Indiana Institute for Personalized Medicine and Paul Dexter, M.D., chief medical information officer at Eskenazi Health and Regenstrief scientist, are the study's principal investigators.



David Flockhart, M.D., Ph.D. | Photo By Indiana Institute for Personalized Medicine

According to Dr. Flockhart, "Scientists will test the utility of this approach in a community-based setting, and in rural, underserved and economically disadvantaged populations and we need to figure out not only whether using genomics in the clinic can be helpful to patients, but also if it will be cost effective."

The study will utilize the Regenstrief Institute's cutting-edge clinical decision support platform and vast informatics knowledge.

The Indiana Institute for Personalized Medicine explores how genetic information and environmental exposure affect each person's risk for developing certain diseases and their response to medication. The institute examines how personalized medicine may be translated in clinical settings to advance the practice, delivery and economics of health care.

The study, known as INGenious (Indiana Genomics Implementation: An Opportunity for the Under Served), is supported by the National Institutes of Health and is one of three studies that has been included in a pilot program that totals more than \$11 million in grant funding. Known as the Implementing Genomics in Practice program, the three studies are administered by the National Human Genome Research Institute, part of NIH.

FACULTY SPOTLIGHT

The Genetic Portrait Project: Herron Professor documents people's perceptions of genetic research through photographs

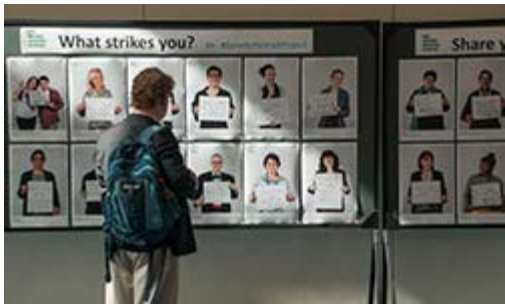
Stefan Petranek, assistant professor of photography and intermedia at IUPUI's Herron School of Art and Design, has taken an unusual approach to collecting people's thoughts on science. With a marker and poster board in hand, Petranek asks individuals from a diverse range of backgrounds to consider "how the future will be affected by genetic research." He then photographs his volunteers holding their message. In the last four years, Petranek has photographed over 400 individuals creating a noteworthy catalogue of responses that reflect the diversity of ethical concerns and technological promise this expansive field of science offers society.



Stefan Petranek

As researchers' ability to manipulate DNA for a wide array of biological issues, from human health to agricultural production advance, the influence of DNA-based technologies on our daily lives has grown exponentially. Yet there is little research which tracks Americans' perceptions of these technologies. The Genetic Portrait Project grew out of Petranek's ongoing artwork about the psycho-social implications of a genetically advanced world and his interest in how others were grappling with the same issues. The project represents the first-ever visual documentary of individuals' perceptions on science.

Petranek has photographed several high profile individuals for the project including Dr. Eric Green, Director of the National Human Genomic Research Institute at NIH, and internationally known artist, Mark Dion. He has also photographed individuals from a variety of backgrounds, including soliciting people off the streets from cities like Indianapolis, Boston, and Portland, OR to participate. Recently, Petranek has focused on creating interactive initiatives at genetic and bioethics conferences. In 2014, he photographed attendees at the American Society of Human Genetics (ASHG) Annual Meeting, the world's largest genetics conference. His photographs have been exhibited nationally and were recently published in *Frontline Genomic Magazine's* [March issue](#). To see more portraits you can visit [Petranek's website](#) and the [Project's Facebook page](#).



American Society of Human Genetics (ASHG) Annual Meeting attendee looks at a sampling of Petranek's Genetic Portrait Project exhibit



Petranek photographs subject for the Genetic Portrait Project

In the near future, Petranek plans to create a website that will allow people to participate autonomously, creating an international repository of photographic portraits dedicated to documenting thoughts on genetics at this moment in history.

STUDENT SPOTLIGHT

Herron grad's personal blog of 'Things Organized Neatly' takes international award

["Let me organize your things."](#) said Austin Radcliffe, and with those five words the Herron School of Art and Design graduate accepted the [2015 People's Voice Webby Award for Personal Blog/Website](#) during the 19th Annual Webby Awards on May 18.

Presented by the International Academy of Digital Arts and Sciences, the Webby Awards honors excellence on the Internet, in the categories of websites, advertising and media, online film and video, mobile sites and apps, and social. This year's 344 winners were chosen from nearly 13,000 entries from all 50 states and more than 60 countries.

Radcliffe's award-winning website, "Things Organized Neatly," includes images of just that -- things organized neatly -- created and curated by him.

His latest creation, "Springs Organized Neatly," was created specifically in celebration of his Webby award; the award logo and trophy are springs. The photo was shot in collaboration with Brooke Shanesy.



Webby Award Winner



Austin Radcliffe at work organizing things neatly

"Images on my blog come from artists, mainly photographers, all over the world," Radcliffe said. "I have featured approximately one photo every day for the last five years, so I couldn't have done it all myself. The site has become a documentation of the trend/style of organizing things neatly."

Other posts include:

- *A child's make-believe super hero costume.
- *Nicholas Jacobsen's objects left behind in an old plumbing company.
- *Robert Wilson's neatly organized cup and saucers for the launch of a new line of ceramics.
- *Jim Golden's hair barrettes.
- *Renee Altov's disassembled 1980s Mitsubishi Colt

During the star-studded awards ceremony in New York, Radcliffe and other Webby winners received their Webby statues, a silver spring, and acknowledged their wins in five-word acceptance speeches, a Webby tradition.

"It is very exciting to be recognized by such a prestigious Internet award for a [blog project I started while at Herron](#)," Radcliffe said. "The awards ceremony was surreal and definitely memorable. I don't know exactly what it will lead to, though I have already gotten a few new emails from creative agencies who want to work together."

A resident of Cincinnati, Radcliffe graduated from Herron, on the Indiana University-Purdue University Indianapolis campus, in 2012 with a major in fine art and art history. His images of organized things have earned him an invitation to work with Tate Galleries in London, a book deal and more than 350,000 Tumblr followers.

TRANSLATIONAL RESEARCH IMPACT

Researchers examine how to minimize drought impact on important food crops

The worldwide demand for legumes, one of the world's most important agricultural food crops, is growing; at the same time, their production has been adversely affected by drought. In an IUPUI research paper published recently in the journal *PLOS ONE*, researchers provide information that could help agricultural planning and management to minimize drought-induced yield losses.



Legumes

Legumes, which include peas, beans, peanuts and alfalfa, are grown in almost every climatic region and are second only to cereals in terms of contribution to food security.

World demand for legumes is expected to grow in the foreseeable future, not only in developing countries but also in the developed nations, given the trend toward healthy dieting. Frequent intake of legumes, which are rich in protein and soluble fiber, has been associated with reduction of cardiovascular diseases, diabetes, digestive tract disease and obesity. But many regions of the world have experienced significant shifts in the pattern and amount of rainfall, raising concerns about a growing water scarcity problem and increasing crop failure.

It has been unclear, however, how the effects of drought co-vary with legume species, soil condition, agroclimatic region and drought timing, said Lixin Wang, an assistant professor in the Department of Earth Sciences in the School of Science and the corresponding author of ["Global synthesis of drought effects on food legume production."](#)

To address those uncertainties, the researchers collected literature data from 1980 to 2014 that reported legume yield responses to drought under field conditions, and they analyzed this large data set using meta-analysis techniques.

The researchers were particularly interested in how different variables influenced the yield responses. The variables of interest include legume species; location, such as tropic or non-tropic; climatic region, such as dryland or non-dryland; drought timing; and soil texture.

"By synthesizing the results of field studies across the globe, we wanted to better characterize the factors that determine the magnitude of yield loss in legumes due to drought stress, which must be considered in agricultural planning to increase the resilience of legume production systems," Wang said. "Our results could facilitate the development and selection of existing legume species, as well as better management for drought-prone regions by testing whether these species become more or less sensitive to climate variations, particularly drought."

The results of this study showed that the amount of water reduction was positively related to yield reduction, but the extent of the impact varied with legume species and the phenological state during which drought occurred. Another factor affecting yield loss was that legumes grown in soil with medium texture also exhibited greater yield reduction compared to those planted in soil of either coarse or fine texture. This is counterintuitive, considering production potential of medium-textured soils is usually high.

"Studies such as Dr. Wang and his colleagues' are essential for revealing subtle patterns in the responses of crops to droughts caused by climate variability. For example, his finding that legume drought responses vary strongly across soil texture

demonstrates the need for a better understanding of how drought-induced water scarcity interacts with plants and soils to affect food production.” said Kelly Caylor, an associate professor in the Department of Civil and Environmental Engineering in Princeton University.

Overall, the yield of lentils, peanuts and pigeon peas were found to experience lower drought-induced reduction, according to the paper. Yield reduction was generally greater when legumes experienced drought during their reproductive stage.

“Since our results showed that the effects of drought on yield production varied with species and soil texture as well as drought timing, this study underscores the need to prioritize the selection and development of drought-resistant legume species adapted to the drought-prone regions of the world,” Wang said.

Because the effects of drought on legume production were found to be affected less by climatic regions and related more to legume species, the selection and promotion of drought-resistant legume species could provide an approach to minimize the impact of droughts.

Other authors of the paper are Pierre-Andre Jacinthe, an Earth Sciences associate professor, and Stefani Daryanto, a postdoctoral researcher working with Wang.

OVCR INTERNAL GRANT DEADLINES

Release Time for Research (RTR): IUPUI maintains a robust research enterprise. To support faculty with adequate time to prepare competitive proposals, the IUPUI Office of the Vice Chancellor for Research has developed the Release Time for Research (RTR) internal funding mechanism. This funding program allows IUPUI faculty a "buyout" of teaching time to prepare high-quality grant/contract proposals for submission to external funding agencies. It also supports non-tenure track faculty who are full-time senior lecturers or clinical track faculty possessing terminal degrees relevant to their fields, and who have a desire to engage in research or creative activity in an area that directly relates to their teaching or service mission. *The next RTR application deadline is **July 1, 2015**.* For grant guidelines and application forms, go to <http://research.iupui.edu/funding/>.

OTHER INTERNAL GRANT DEADLINES

Indiana CTSI seeks community-based research pilot projects

The Indiana Clinical and Translational Sciences Institute (CTSI) Community Health Engagement Program (CHEP) seeks proposals from applicants developing or currently involved in collaborative, community-based research projects. For this RFA, community-based research is a collaborative effort with at least one community-based organization and at least one academic partner.

The Indiana CTSI CHEP will provide up to \$25,000 in funding per pilot project. Proposed project duration should not exceed 12 months. Focus areas of the 2015 RFA are in line with the priorities of the Indiana State Department of Health:

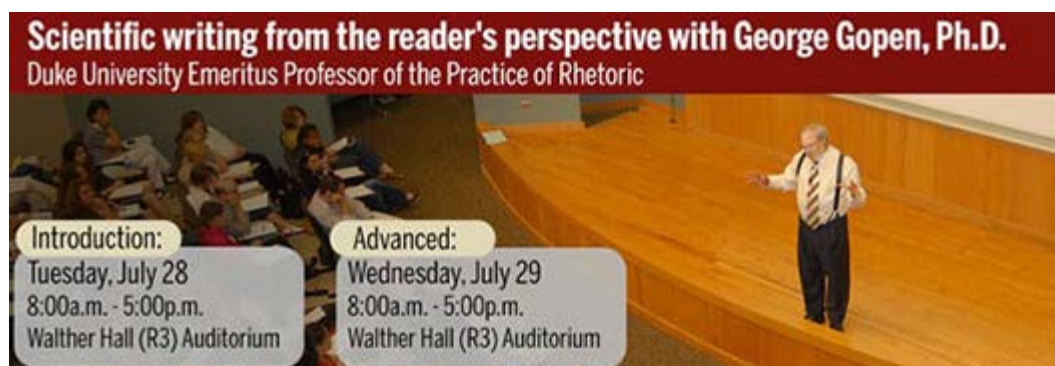
- *Reducing infant mortality.
- *Increasing immunizations.
- *Decreasing tobacco use.
- *Decreasing obesity.

Projects that propose achieving their objectives by changing or demonstrating the potential to change policy, systems and/or the environment are strongly

encouraged.

Proposals are due by 5 p.m. July 21. [For more information, the full Request for Applications is available.](#) [Frequently asked questions are also available.](#)

EVENTS AND WORKSHOPS



As competition for external funding becomes more challenging, getting one's scholarly work successfully published is more important than ever. Dr. Gopen's approach is based on a single idea: learning to write for the reader allows the writer to control what readers learn.

This year, Dr. George Gopen will present this workshop on Tuesday, July 28. To register for the introduction workshop, click [here](#).

Faculty who are planning to attend the advanced workshop on Wednesday, July 29 MUST attend the introduction workshop or have attended one in the years prior. To register for Wednesday, July 29, please click [here](#).

As in past years, Dr. Gopen will also conduct hour-long, individualized consultations. ONLY faculty members who participate in the day-long event will have access to the individual consultation registration. Instructions will be sent to participants after their registration for the workshop is complete.

More about Dr. Gopen's original approach to scientific writing can be found in his article, [*The Science of Scientific Writing*](#).

About the Presenter

George D. Gopen is a Duke University Emeritus Professor of the Practice of Rhetoric. He is also Senior Lecturing Fellow, Department of English and Senior Lecturing Fellow, School of Law. Professor Gopen received both his J.D. and his Ph.D. in English from Harvard University. Dr. Gopen is a pioneer in the mastery of scientific writing. His scientific clients have included the NIH, the FDA, Bristol-Myers Squib, Bayer, and Duke University School of Medicine.

This event is sponsored by the IU School of Medicine Office of Faculty Affairs and Professional Development, the IUPUI Office of the Vice Chancellor for Research and the IUPUI Center for Teaching and Learning.

Herron School of Art and Design's 2015 Summer Exhibitions

The Herron School of Art and Design will feature works by five artists in a range of media from photography to painting to sculpture and video.

A reception in Eskenazi Hall on July 10 from 5:00 p.m. to 8:00 p.m. will open the galleries, which are free and open to the public. The exhibitions continue through July 31.

Michelle Given lives and works in Indianapolis and has taught at Murray State University as well as Indiana University. Her work in this show includes interior spaces, landscapes and cityscapes, and video.

Stacey M. Holloway, Herron alumna (B.F.A. 2006) and former faculty member, is an assistant professor of sculpture at the University of Alabama, Birmingham. Her cache of poignant yet whimsical dioramas sold out at a recent gallery show in New York, so she has promised to make new works for this exhibition. Valerie Eickmeier, dean of Herron, will exhibit selected works created during her recent sabbatical that meld real experiences and observations with imagined and reinterpreted images.

These paintings are based on changing sequences in nature as well as contemplation of the underlying forces that create change. In the Marsh Gallery, recent works by Marianne Glick will be on display. The civic leader and philanthropist began painting in 2004 as she searched for a creative outlet to replace gardening during the winter. She describes herself as an abstract expressionist who works mostly in watercolor and acrylic. The Basile Gallery will feature works by R. Stephen Lehman. A prosthodontist by profession, Lehman began his love of photography in college shooting campus parties. He likens his seriousness about the medium to that of legendary cellist Pablo Casals, who was once asked why, at 93, he continued to practice three hours a day. Casals replied, "I'm beginning to notice some improvement."

Hate Speech and the First Amendment: Values in Conflict

Date/Time: 06/19/2015, 12:00 pm - 1:00 pm
Location: [Scottish Rite Cathedral](#) (650 N Meridian Street) - Free
At what point, if at all, should so-called "hate speech" become illegal? During the monthly luncheon of the [League of Women Voters of Indianapolis](#), hear attorney and civic leader Don Knebel discuss hate speech and the First Amendment.

Can We Talk about RFRA without Talking Past One Another?

Date/Time: 6/24/2015, 6:00 pm - 7:30 pm
Location: IU Robert H. McKinney School of Law Wynne Courtroom (530 W. New York) – FREE (register at <http://mckinneylaw.iu.edu/events/current.cfm?eid=346>)
It's fair to say that the controversy over RFRA raised more heat than light. This panel aims to model thoughtful conversation on the constitutional and philosophical questions raised by the RFRA debate. Hear from executive director of the ACLU of Indiana Jane Henegar, IU McKinney Professor of Law John Hill, and attorney and IBJ columnist Peter Rusthoven, with panel moderation by IU McKinney Professor of Law Robert Katz. 1.5 hours of CLE credit available.

RECENT EXTERNAL FUNDING AWARDS

The Office of the Vice Chancellor for Research recognizes and congratulates all IUPUI faculty and researchers for recent awards they have received and that help to advance the IUPUI research enterprise. The following table highlights those receiving \$100,000 or more in external grants.

Grants and Awards – May 2015

PI	Agency	Project Title	School	Department	Total
Yang, X Frank	NATIONAL INSTITUTE ALLERGY & INFECTIOUS DISEASES	Host adaptation of the Lyme disease spirochete	MEDICINE	MICROBIOLOGY & IMMUNOLOGY	\$2,062,342
Zimmers, Teresa	NATIONAL CANCER	PQB3: Mechanisms & Targeting of Sonic Hedgehog Signaling in Muscle Wasting of	MEDICINE	GENERAL SURGERY	

Audrey	INSTITUTE	Cancer Cachexia			\$1,432,067
Li, Lei	NATIONAL SCIENCE FOUNDATION	Mechanistic studies of the spore photoproduct lyase	SCIENCE	CHEMISTRY	\$650,000
Davis, Stephanie D	UNIVERSITY OF WESTERN AUSTRALIA	Identifying the clinical utility of MBW in early CF lung disease	MEDICINE	PED-PULM CRITICAL CARE/ALLERGY	\$259,605
Schrader, Stuart M	MARION COUNTY HEALTH DEPARTMENT	15-16 Marion County Public Health Department Professional Service Grant, Ryan White Services Program: Oral Health Fee for Dental Service and Outreach Services	DENTISTRY	DENTISTRY-RESEARCH	\$156,959
Bodenhamer, David J	GEORGIA EMERGENCY MANAGEMENT AGENCY	Proposal to Develop Building Inventory Translators and Hazus Level II Risk Assessments for Selected Counties in Georgia	LIBERAL ARTS	POLIS	\$150,100
Logan, Theodore F.	YALE UNIVERSITY	Stand Up To Cancer Consortium Genomics-Enabled Medicine for Melanoma (G.E.M.M.): Using Molecularly-Guided Therapy for Patients with BRAF wild-type (BRAFWt) Metastatic Melanoma	MEDICINE	HEMATOLOGY/ONCOLOGY	\$119,845
Curtis, Edward E	NATIONAL ENDOWMENT FOR THE HUMANITIES	World Religions in Greater Indianapolis	LIBERAL ARTS	LIBERAL ARTS	\$119,009
Sankar, Uma	U.S. DEPARTMENT OF DEFENSE	CaMKK2 Inhibition in Enhancing Bone Fracture Healing	MEDICINE	ANATOMY & CELL BIOLOGY	\$101,762
Duman Scheel, Molly	BILL & MELINDA GATES FOUNDATION	Small Interfering RNA Larvicides for Control of Malaria Vector Mosquitoes	MEDICINE	IUSM-SOUTH BEND	\$100,000

CURRENT EXTERNAL FUNDING OPPORTUNITIES

Funding opportunities in this section include selected current grant announcements from federal agencies for new initiatives and changes to existing programs. Announcements with limited scope are not listed here but instead are sent directly to IUPUI School Deans. For comprehensive coverage of funding opportunities, please use the links to online search tools listed below.

GOOGLE

Google Research: Faculty Research Awards: This program aims to identify and support world-class, full-time faculty pursuing research in areas of mutual interest. The intent of the Awards is to support cutting-edge research in Computer Science, Engineering, and related fields. Applicants are asked to categorize their proposals into one of the following broad research areas of interest to the company: Computational neuroscience, Economics and market algorithms, Geo/maps, Human-computer interaction, Information retrieval, extraction, and organization (including semantic graphs), Machine learning and data mining, Machine perception, Machine translation, Natural language processing, Networking, Online education at scale, Physical interactions with devices, Policy and standards, Privacy, Robotics, Security, Social networks, Software engineering and programming languages, Structured data and database management, and Systems (hard/software).

Each funded project will be assigned a Google sponsor. The role of the sponsor is to support the project by discussing research directions, engaging with professors and students, and overseeing collaboration between the project team and Google. The company encourages Research Awards recipients to visit Google to give talks related to their work and meet with relevant research groups here. Through the Research Awards program, the company tries to fund projects where collaboration with Google will be especially valuable to the research team.

Deadline: October 15, 2015.
http://research.google.com/university/relations/research_awards.html

General Motors Foundation

The General Motors Foundation supports only programs that fall within the Foundation's four key focus areas: education, health and human services, environment and energy, and community development. Primary consideration is given to requests that meet the following criteria:

1. Exhibit a clear purpose and defined need in one of the Foundation's four key focus areas.
2. Implement innovative approaches to address the defined need.
3. Demonstrate efficiency and the ability to follow through on the proposal.

Deadline: Continuous. http://www.gm.com/company/aboutGM/gm_foundation.html

NOTE: Faculty, researchers, and scientists interested in this funding opportunity may also consider pursuing a collaborative relationship that provides access to unique data for appropriate research projects. This data has been collected from a broad spectrum of public safety personnel from various agencies in Indiana over the past two decades. Cardiovascular disease happens to be the primary cause of on-duty and lifetime mortality in firefighters (45% and 36% of deaths, respectively). Dataset includes: tobacco and alcohol use, diet, physical activity level, medications, immunization history, overall fitness, blood pressure, weight, lung function, blood analysis/lipids/glucose, urine analysis, psychological overview. Over 100,000 person-years are available. Data is currently being accessed for FEMA/Homeland Security study through Harvard School of Public Health. (S. Kales, Primary Investigator). To learn more about this data and explore the feasibility of a joint project for this funding opportunity, please contact Terry Zollinger, Professor Emeritus, Fairbanks School of Public Health, at 317.278.0307 or tzollinger@iu.edu).

NATIONAL INSTITUTES OF HEALTH

Developing the Therapeutic Potential of the Endocannabinoid System for Pain Treatment (R01): The purpose of this opportunity is to support projects that will elucidate the therapeutic potential of the cannabinoids and endocannabinoid system in the development of mechanism-based therapies for pain. Components of Participating Organizations: National Institute on Drug Abuse (NIDA), National Cancer Institute (NCI), National Institute on Aging (NIA), National Center for Complementary and Integrative Health (NCCIH), National Institute of Neurological Disorders and Stroke (NINDS), National Institute on Alcohol Abuse and Alcoholism (NIAAA), and the Eunice Kennedy Shriver National Institute of Child Health & Human Development.

Deadlines: AIDS related: September 7, 2015; all other: October 5, 2015.

<http://grants.nih.gov/grants/guide/pa-files/PA-15-188.html>

High Throughput Screening (HTS) to Discover Chemical Probes (X01): This Resource Access Opportunity is to promote and support discovery and development of new chemical probes as research tools for use by the research community to advance the understanding of biological functions and disease mechanisms. The announcement encourages partnership between assay submitters and a funded High Throughput Screening (HTS)/chemical probe discovery facility to conduct the joint research. Through this announcement, NIH wishes to stimulate research in 1) discovery and development of novel, small molecules for their potential use in studying disease treatment relevant to the missions of the participating NIH Institutes and Centers, and 2) discovery and/or validation of novel, biological targets that will inform studies of disease mechanisms. Emphasis will be placed on assays that provide new insight into important disease targets and processes. Components of Participating Organizations: National Institute of Mental Health (NIMH), National Institute on Alcohol Abuse and Alcoholism (NIAAA), Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), National Institute on Drug Abuse (NIDA), and the National Center for Advancing Translational Sciences (NCATS).

Deadlines; Letters of Intent: 30 days before submission; Applications: August 5 & December 4, 2015. <http://grants.nih.gov/grants/guide/pa-files/PA-13-134.html>

Obesity and Asthma: Awareness and Self-Management (R01): The purpose of this opportunity is to stimulate research to examine the relationship between asthma, obesity and self-management. The prevalence of both asthma and obesity has significantly risen in the past few decades. Although the association between these two conditions has been found in many studies, the exact mechanisms for how this association arises are unresolved to include self-management and to achieve control. Because both of these conditions have their beginnings in early life, an aspect of the association between them that requires more understanding is their common exposures in early life and transition into adulthood. Studies that investigate the molecular pathways linking asthma and obesity are encouraged as long as the studies describe how this relates to self-management. In addition, intervention studies targeting asthma or obesity and their effects on each other, and possible mechanisms of action and effect on behavior, are encouraged.

Deadline: October 5, 2015. <http://grants.nih.gov/grants/guide/pa-files/PA-14-316.html>

NATIONAL SCIENCE FOUNDATION

Quantum Information Science: Quantum Information Science (QIS) supports theoretical and experimental proposals that explore quantum applications to new computing paradigms or that foster interactions between physicists, mathematicians, and computer scientists that push the frontiers of quantum-based information, transmission, and manipulation. The quantum-based information science program is focused on investigations relevant to disciplines supported by the Physics Division, while encouraging broader impacts on other disciplines. Disciplines within the purview of the Physics Division include: atomic, molecular, optical, plasma, elementary particle, nuclear, gravitational and biological physics, particle astrophysics, and accelerator science.

Proposals with intellectual focus in areas supported by other NSF Divisions should be submitted to those divisions directly. Proposals that cross Divisional lines are welcome, but the Physics Division encourages PIs to request a co-review by naming other Divisional programs on the cover sheet. This facilitates the co-review and participation of other programs in the review process.

Deadline: December 3, 2015. http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505207

Integrative Paleoanthropology Grants (IPG): The goal of this competition is to further innovative, integrative research to elucidate hominin biological and behavioral evolution. The particular focus is on long-term processes within hominin evolution and how they relate to major questions of paleoanthropological significance. While the intellectual scope of the competition is thus constrained, the potential methodologies and disciplines are not. It is understood, for example, that fields such as, but not limited to, cognitive science, genetics, and spatial or mathematical modeling may be directly relevant to such an endeavor. Competition organizers recognize that much paleoanthropological research is currently interdisciplinary and integrative in nature. However, the competition is intended to stimulate research that is integrative and crosses intellectual/disciplinary boundaries in novel ways, above and beyond current practice. As general examples, an integrative and interdisciplinary project might: 1) encompass broader perspectives, not previously synthesized, on regional and large-scale comparative issues, or 2) result in the development and application of an innovative method informed by multiple disciplines. Proposals are required to address this issue directly in the project description by using up to two pages of the 15 to specifically speak to how the proposed research is both integrative and novel beyond norms currently in practice and how the proposed research could not be accomplished otherwise. Reviewers and Program Officials will place significant weight on this criterion.

Deadline: April 2, 2015. http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505181

Designing Materials to Revolutionize and Engineer our Future (DMREF): This program will support efforts that span researchers in materials science, chemistry, mathematics, computer science, and engineering, thereby bridging Program and Divisional interests. The complexity and challenge of activities addressed by this initiative require a transformative approach to discovering and developing new materials, predicting and optimizing properties of materials, and informing the design of material systems. Accordingly, the proposed research must be a collaborative and iterative process wherein theory guides computational simulation, computational simulation guides experiments, and experiments further guide theory. Strategies must be included in the proposed research to advance synthesis/growth/processing techniques, characterization/testing methodology, and theory/data/computation/simulation approaches needed to develop predictive models.

This process will require a team of PIs with the requisite expertise. Accordingly, it is expected that proposed projects will be directed by a team of at least two Senior Personnel with complementary expertise. The proposal must provide a plan for enhanced data management that ensures transparency, data sharing, and open source software, including an explicit statement of which open source license(s), if applicable, will be used. While not required, ties with industry, national laboratories, engineering partners, or other organizations are encouraged. If there are strong collaborations with industry, please see the Grant Opportunities for Academic Liaison with Industry (GOALI) program solicitation, which can be used in conjunction with this effort. Because this DMREF approach emphasizes an integrated approach to materials research, cross-disciplinary educational activities are encouraged, as are public outreach activities.

Deadline: January 29, 2016. http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505073&org=NSF&sel_org=NSF&from=fund

U.S. DEPARTMENT OF DEFENSE (DOD)

Awards to Stimulate and Support Undergraduate Research Experiences (ASSURE): The ASSURE program aims to provide valuable research opportunities for undergraduates, either through ongoing research programs or through projects specially designed for this purpose. Research projects should allow high quality interaction of students with faculty and/or other research mentors and access to appropriate facilities and professional development opportunities. Active research experience is considered one of the most effective ways to attract and retain talented undergraduates in science and engineering. ASSURE projects must have a well-defined common focus that enables a research-related experience for students. Applicants are encouraged to involve students in research who might not otherwise have the opportunity, particularly those from institutions where research programs are limited. **Thus, a significant fraction of the student participants should come from outside the host institution.** In addition, DoD is interested in strengthening institutions with limited research programs and especially encourages proposals that help to enhance the research infrastructure in predominantly undergraduate four-year institutions. Student participants must be citizens or permanent residents of the United States or its possessions. There is no separate application for the ASSURE program; ASSURE funding is awarded through the NSF REU Sites Program. Any proposal submitted to NSF for the REU Sites program that is recommended for funding through the NSF merit review process will be considered by DoD representatives for possible support through ASSURE.

Deadline: August 27, 2015.
<http://www.wpafb.af.mil/library/factsheets/factsheet.asp?id=9333>

NOTE: All faculty, researchers, and scientists on continuing contracts at IU interested

in applying for Department of Defense funding are eligible for assistance by the consulting firm Cornerstone Government Affairs as arranged by the Vice President for Research. Those interested in securing assistance from Cornerstone must submit a two-page summary of their research project and a CV or biosketch to the VP for Research Office at vpr@iu.edu . Prior to submission, the IUPUI Office of the Vice Chancellor for Research is offering assistance with the two-page summaries. For more information, contact Ann Kratz at akratz@iupui.edu.

U.S. DEPARTMENT OF ENERGY (DOE)

Reliable Electricity Based on Electrochemical Systems (REBELS): This program seeks to disrupt traditional learning curves for distributed, stationary power generation by introducing technology concepts that have the potential for significantly lower cost and that are capable of performance superior to current distributed generation technologies. Fuel cell technologies have been touted for decades due to their high chemical-to-electrical conversion efficiencies and potential for near-zero greenhouse gas emissions when fueled by hydrogen or operated as part of a carbon capture and storage (CCS) process. However, fuel cell technologies have not achieved widespread adoption due primarily to high cost relative to incumbent combustion technologies. In this program, ARPA-E seeks to fund transformational fuel cell devices that operate in an intermediate temperature range in an attempt to 1) create new pathways to achieve an installed cost to the end-user of less than \$1,500/kW at moderate production volumes, and 2) create new fuel cell functionality to increase grid stability and integration of renewable energy technologies such as wind and solar.

Deadline: Concept Paper: January 8, 2016. <https://arpa-e-foa.energy.gov/#Foald63d6bcce-92dc-4656-a650-1111825cfd42>

IDENTIFYING FUNDING OPPORTUNITIES

On-line search tools are available to IUPUI investigators who are interested in identifying funding opportunities in their areas of interest.

Community of Science (COS): COS is a primary on-line search tool for identifying funding opportunities. To take advantage of this tool, register at <http://www.cos.com/login/join.shtml>. Once you have completed the short registration process, you can personalize your search by selecting the option entitled "launch your workbench". You can access federal, local, corporate, foundation, nonprofit and other funding opportunities using key terms and save the results of up to 20 searches and have them delivered to you weekly via email.

National Institutes of Health (NIH) "NIH Guide": To take advantage of this search tool, register at <http://grants.nih.gov/grants/guide/listserv.htm>. It allows you to receive discipline specific funding opportunities that are delivered to you weekly via email.

National Science Foundation (NSF) "MyNSF": To take advantage of this search tool, register at http://service.govdelivery.com/service/multi_subscribe.html?code=USNSF&custom_id=823. It allows you to receive discipline specific funding opportunities that are delivered to you weekly via email.

Federal Business Opportunities "FedBizOpps": FedBizOpps is the single government point-of-entry for Federal government procurement opportunities over \$25,000. To take advantage of this search tool, visit <https://www.fbo.gov>. Opportunities found at this site include, but are not limited to, presolicitations and special notices for research and service contracts for specific projects and some national centers and surveys that would not be found in Grants.gov and may not be found in the Community of Science.

Limited Submission Funding Opportunities:

Many federal agencies and foundations offer grants, awards and fellowships that limit the number of applications that can come from one institution or require special handling. In order to comply with agency and foundation guidelines and increase the chances of Indiana University (IU) succeeding in such limited submissions and special handling opportunities, IU policies and procedures are in place and are utilized by the Office of the Vice Chancellor for Research and other IU research offices to facilitate internal coordination and competitions.

Individuals interested in responding to limited submission opportunities must inform the Office of the Vice Chancellor for Research about their intent to apply to a given limited submission opportunity, such that they can be included in the internal review and selection process. Failure to do so may disqualify individuals from consideration for submission to the funding opportunity.

Individuals interested in a limited submission opportunity or have any questions about the internal coordination process, contact Etta Ward at emward@iupui.edu or 317-278-8427. For a description of upcoming limited submission funding opportunities, as well as guidelines and application forms, go to: http://research.iu.edu/limited_sub.shtml. Please note that this is not a comprehensive list, and that any external funding opportunity that imposes any type of submission limitation is subject to the IU limited submission policy and procedures.

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