



• Research Development

# Office of the Vice Chancellor for Research

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RESEARCH ENTERPRISE NEWSLETTER

July 28, 2017

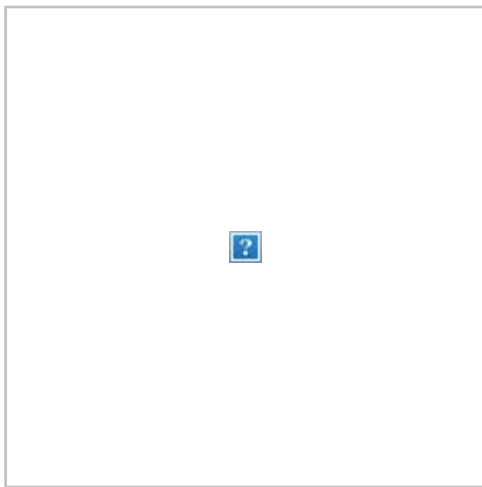
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## FEATURE STORY

**Fear of arrest stops some needed calls to 911 after opioid overdose**

Fear of being arrested still undercuts an



Indiana law that shields anyone who administers naloxone from criminal charges, according to a survey conducted by two researchers at Indiana University-Purdue University Indianapolis. Naloxone is a lifesaving emergency antidote for opioid overdose.

Contents of naloxone kit

Approximately 73 percent of survey respondents said 911 was called after naloxone was administered for an overdose, but 27 percent of respondents indicated 911 was not called, according to Dennis Watson, an associate professor in the Indiana University Richard M. Fairbanks School of Public Health, and Bradley Ray, an assistant professor in the IU School of Public and Environmental Affairs, both at IUPUI.

Watson and Ray said their research shows that people don't call 911 because they are afraid of being arrested.

"There is a possibility this fear may translate to death if the naloxone dose provided is not strong enough to completely counteract the opioids in the person's system," Ray and Watson wrote in a [recent blog post](#).

"A person could look perfectly fine, get up and walk away, and then

go into overdose again 30 minutes later," Watson said.

Under Aaron's Law, anyone may legally obtain naloxone -- also known by the brand name Narcan -- and administer it. Naloxone can be obtained through a standing order that allows pharmacies to dispense it to the public.

Part of the reason Aaron's Law exists is to make sure people receive the care they need without fear of arrest, Ray said: "This is a public health problem, not a criminal justice problem.

"Naloxone is an incredible, lifesaving substance, and if you use it to save someone's life, you should get a round of applause, not worry about a night in jail," Ray said.

The two IUPUI researchers said additional educational efforts are needed to inform the public about Aaron's Law and naloxone. These efforts should focus on the general public but also be directed at professionals working in this area, they said.

Naloxone is not intended to replace emergency medical care. Persons who administer it are urged to call 911 for medical help.

This survey is part of an evaluation the researchers have conducted of opioid policies that have been implemented in Indiana since 2013. The evaluation is funded by an \$800,000 Centers for Disease Control and Prevention grant.

Ray and Watson's team placed survey postcards with the naloxone kits that are handed out at local health departments. Among the questions asked on the postcard, which is mailed back to the researchers, is whether 911 was called after naloxone was administered.

The number of deaths from drug overdoses continues to rise in Marion County. Last year, a record number of people -- 345 -- died from drug overdoses in the county. By comparison, on average, 85 people are killed per year in traffic accidents in Marion County.

As of May 1, there have been 130 drug-overdose deaths in Marion County in 2017, compared to 98 deaths that were recorded at the same time last year.

Ray and Watson received a total of 1,281 cards, including 1,197 that were filled out when the person picked up the kit and 84 that were filled out after the kit was used.

The postcard survey initially targeted 20 counties in Indiana. Another 16 counties were recently added to the survey.

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## ANNOUNCEMENTS

### **New Ph.D. program in American studies looks to prepare students for careers in the community**



Students take a Public Art and Ethics seminar by the IUPUI Arts and Humanities Institute, a one-credit-hour course for the Ph.D. in American studies. Photo courtesy of the IUPUI Arts and Humanities Institute Research Coalition.

The IUPUI Arts & Humanities Institute (IAHI) has teamed up with the IUPUI American Studies program to offer a new PhD track in Cultural Ecologies. Cultural Ecologies is an applied program that supports the community by embedding students in cultural organizations while preparing them for jobs in the cultural sector.

The Cultural Ecologies PhD track has three components: 1) coursework, 2) internship, and 3) dissertation. Student coursework is interdisciplinary and focused on both qualitative and quantitative methods. The centerpiece of the program is a multi-year internship in a central Indiana cultural organization. While there, students will help solve a complex problem that the institution faces. This internship experience will provide the core research for the dissertation, a major work of scholarship.

While in the PhD program, students will be affiliated with the IAHI and participate in its Cultural Ecologies Project, which asks the question, "how do arts and humanities interventions transform cities?" Working with numerous community partners, this research project examines the impact of the arts and humanities across multiple scales — from the personal to the neighborhood to the city level.

It will provide artists, cultural organizations, funders, policy makers, and others with:

- A central research center that can offer expertise in cultural planning, assessment, evaluation, and reporting.
- A suite of open access tools to help individuals and organizations continuously assess their cultural programming.
- Reports that contextualize Indianapolis' arts and humanities environment within national and international conversations and practices.

The PhD Program in American Studies is one of five new PhD programs at IUPUI approved by the Indiana Commission on Higher Education in 2016. Students with Bachelor's Degrees are eligible to apply, and those with advanced professional degrees, such as MAs, MBAs, JDs, and EdDs, are especially encouraged. To learn more about the Cultural Ecologies Project and the PhD track visit [culturalecologies.org](http://culturalecologies.org)

### **IU seeking institutional nominees for the Japan Foundation's "Performing Arts Japan for North America" award**

The Japan Foundation's "Performing Arts Japan for North America" program is designed to provide financial assistance for non-profit organizations in the US and Canada that aim to introduce Japanese performing arts to local audiences. PAJ Touring Grants help present Japanese performing arts at multiple locations in the United States and Canada, with an emphasis on locations outside major

Japan Foundation

metropolitan areas. PAJ Collaboration Grants help Japanese and American/Canadian artists develop new work, which will further an appreciation of Japanese culture when presented to American/Canadian audiences. The PAJ program offers two types of support:

- The Touring Grant assists with the presentation of Japanese performing arts at multiple locations in the United States and/or Canada, with emphasis on locations outside major metropolitan areas where there is little exposure to Japanese performing arts.
- The Collaboration Grant facilitates the collaboration of Japanese and American/Canadian artists so that they may create new work with the potential to develop into a touring project and further an appreciation of Japanese culture when presented to audiences in the United States and Canada.

Grants are determined on a cost-sharing basis and are awarded only

to U.S.-based or Canada-based non-profit organizations and are subject to the relevant laws and regulations of the Japan Foundation. Applicants are eligible to apply for one project only through one of the two categories. Only one applicant from each Indiana University campus, so applications must go through the limited submissions process for each institution to determine its nominee. To apply for IU Internal competition, please find [the application at the IU Research Gateway website](#) The internal deadline for IUPUI is August 30, 2017.

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## INSTITUTE SPOTLIGHT

**More power in your hands? Controlling dendrites reveals secret to rechargeable lithium electrode**



Imagine your cellphone being as thin as a piece of paper and not in need of near-constant charging.

That's possible with the manipulation of a battery's dendrites, says Jian Xie, an Indiana University-Purdue University Indianapolis

IUPUI's Jian Xie, Yadong Liu and Fan Yang professor of mechanical engineering and a research member of the have helped unlock the secret to a revolutionary [IUPUI Integrated Nanosystems Development Institute](#).

battery. Photo courtesy of the School of

Engineering and Technology at IUPUI

In a paper recently published in Nature Energy, Xie and a team of



authors -- including School of Engineering and Technology postdoctoral research associates Yadong Liu and Le Xin, postgraduate student Qi Liu, and Ph.D. student Fan Yang -- detail how they have solved a decades-old problem with lithium metal electrodes in batteries.

For battery manufacturers, how to make a rechargeable lithium metal electrode has proved frustratingly elusive. Such an electrode would make batteries 10 times more powerful than those currently used in a number of applications.

The fault lies in the dendrites.

Dendrites are crystals that grow inside lithium metal electrodes, in a style similar to trees. As they grow in every direction, they eventually span the entire electrode and short-circuit the battery, making it no longer rechargeable. v Engineers have tried to prevent dendrites from forming at all, but that goes against the metal's nature. Instead, Xie and his team allow the dendrites to form but change their growth direction so they grow in a densely packed layer that doesn't adversely affect the battery. The end result is revolutionary, allowing for safe recharging and high capacity.

"We designed the working principle based on electroplating, and the experiment turned out to work exactly as designed -- a rarity in my 35-year research career," Xie said. "The possibilities for this application are numerous, and we feel the work can be further improved in the

years to come."

Lithium metal electrodes have the highest theoretical specific capacity of energy density, at 3,863 mAh/g (milliAmpere-hour/grams). By comparison, an everyday graphite/hard carbon electrode is only 330 mAh/g.

The expected applications for such a breakthrough battery could include microelectronics, medical devices, electric vehicles, drones, military uses and, yes, portable electronics such as cellphones.

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## FACULTY SPOTLIGHT

**School of Science professor named American Chemical Society fellow**



[Pratibha Varma-Nelson](#), Ph.D., a professor in the Department of Chemistry and Chemical Biology in the School of Science at Indiana University-Purdue University Indianapolis (IUPUI) has been named [a fellow of the American Chemical Society](#) in recognition of her outstanding accomplishments in chemistry and important contributions to the world's

Pratibha Varma-Nelson Ph.D.

largest scientific society.

Varma-Nelson is among 65 individuals selected to join the society as fellows this year, including Indiana University Bloomington Herman T. Briscoe Professor of Chemistry [Dennis G. Peters](#). Both faculty members are distinguished for their contributions to chemistry education and international outreach.

Varma-Nelson is widely recognized as a pioneer in [studying how students learn chemistry in face-to-face and online learning environments](#) under a teaching model called Peer-Led Team Learning. This work has been supported by the National Science Foundation and the Bill & Melinda Gates Foundation.

She is also the founding co-principal investigator on the NSF-funded Center for Authentic Science Practice in Education, as well as the founding executive director of the [STEM Education Innovation and Research Institute](#). Previously, Varma-Nelson served as the executive director of the Center for Teaching and Learning at IUPUI.

Internationally, she has served as a delegate to China on behalf of Project Kaleidoscope, which is now part of the Association of American Colleges and Universities. She also served as an American Chemical Society delegate to India and Cuba in 2014 and 1998, respectively, and a consultant on the establishment of Centers for Teaching and Learning in China, India, Italy and Turkey.

Varma-Nelson is the author of multiple publications about Peer-Led Team Learning and the Center for Authentic Science Practice in

Education, and she is a co-author on the American Association for the Advancement of Science's 2011 "Vision and Change in Undergraduate Biology Education" report. She has been previously recognized by the American Chemical Society for contributions to education and diversity in chemistry.

Varma-Nelson will be recognized as a fellow Aug. 21 during a ceremony and reception at the society's 254th National Meeting & Exposition in Washington, D.C.

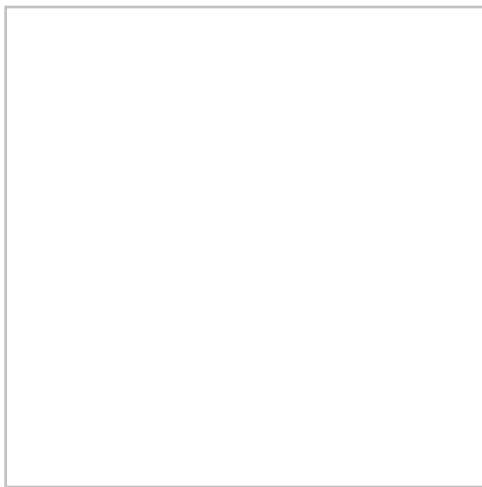
The American Chemical Society is a not-for-profit organization chartered by the U.S. Congress. The organization is a global leader in providing access to chemistry-related information and research through its multiple databases, peer-reviewed journals and scientific conferences.

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## STUDENT SPOTLIGHT

**Newly formed student public health research group at IUPUI wastes no time winning first competition**

Three Ph.D. students at the Richard M. Fairbanks School of Public Health didn't let the rookie status of the school's chapter of AcademyHealth, the leading organization for



health services researchers, stand in the way of winning a student research competition.

The students -- Nate Apathy, Casey Balio and

From left: Casey Balio, Nate Apathy and Robin

**Robin Danek** -- finished first in the competition. Competitors, all

Danek

student chapter members of AcademyHealth, were challenged to use data from the Health Services Research Projects in Progress database to identify a thought-provoking topic on which there seems to be insufficient research or funding.

The National Information Center for Health Services Research and Health Care Technology of the National Library of Medicine joined AcademyHealth in hosting the competition.

The school's AcademyHealth chapter was formed about three months ago.

AcademyHealth is the leading national organization for health services researchers, policymakers, and health care practitioners and stakeholders. It works to increase the understanding of methods and data used in the field and enhances professional skills of researchers and research users.

The National Information Center on Health Services Research and Health Care Technology focuses on improving the dissemination of health services research results, with special emphasis on the growing body of evidence reports and technology assessments that provide organizations with comprehensive, science-based information on common, costly medical conditions and new health care technologies.

The IUPUI students zeroed in on health information technology studies of accountable care organizations. Their proposal was selected as the top entry by a panel of judges from among five finalists.

Accountable care organizations, or ACOs, are groups of doctors, hospitals and other health care providers who come together voluntarily to give coordinated, high-quality care to the Medicare patients they serve.

The team found a gap in projects focusing on empirical evaluation of health information technology in accountable care organizations. Health information technology has been widely cited as important to the success of those organizations in terms of quality improvement, population health outcomes and cost containment.

The students proposed the creation of a novel data set to fill that gap, contending that accountable care organizations with more mature and integrated health information technology use will achieve better

individual and population health outcomes, higher quality, and higher cost savings.

Implementation of the proposal could impact more than 9 million patients who are cared for by accountable care organizations.

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## TRANSLATIONAL RESEARCH IMPACT

### **IU researchers offer new insights into how communities can tap into youth sports tourism**



Two Indiana University researchers say creative marketing is needed to reach visitors in what's become a multibillion-dollar-a-year segment of the tourism industry: youth sports tourism.

Richard Buning, an assistant professor in the School of Physical Education and Tourism Management at Indiana University-Purdue University Indianapolis, and Cassandra Coble, a clinical assistant professor in the IU School of Public Health-Bloomington, are among the first to study the experiences of youth sports travelers. Their study was conducted through the Sports Innovation Institute at IUPUI.

IU researchers offer new insights into  
how communities can tap into youth  
sports tourism

Youth sports are commonly defined as non-school-related sports

activities organized through local programs that include baseball, softball, soccer, lacrosse, rowing, volleyball and gymnastics.

According to Buning, parents are spending as much as \$20,000 a year to take their children to youth sporting events that can be located across town or across the country.

"There's a wide range of people doing it, with some families making one trip a year. But some families whose children are playing at an elite level may take 10, 20 or 30 trips a year," he said.

Youth sports tourism includes travel-related expenses for families who travel to sports tournaments in locations they otherwise would not have visited. It includes spending on gasoline, airfare, buses, hotel rooms, meals and entertainment in the destination city.

Beyond the spending data, though, there was little data on the youth sports traveler experience, Buning said. He and Coble conducted in-depth interviews with parents, coaches, officials and others associated with youth sports tourism in the Indianapolis area to help fill that data void.

"There's been little research to see what people want out of these types of trips, how they make decisions related to this type of travel, what they look for in destinations and events, and what their experiences are like when they go on this type of trip," Buning said.



Communities that want to reach these visitors face a special challenge, Buning said.

### Among travel behaviors Buning and Coble found:

- Limited planning occurs before a trip to a sporting event, other than to find a hotel
- Preconceived notions about destinations influence trip planning and activity information search behaviors.
- Parents, young athletes and support staff have little to no time outside of the event to participate in activities away from the sport venues.
- Typical event trip duration is predominantly Friday to Sunday due to school commitments and travel expenses.

Generally, Buning said, a child, usually accompanied by one parent, will travel with a team to a tournament. The parent and child check into a hotel with a pool so the child can swim. Saturday is spent at the tournament, with the parent and child eating at a restaurant like Subway for lunch and then ordering pizza for dinner. When the tournament ends on Sunday, the parent and child return home. While youth sport visitors or fans are driven to travel by the athletic event, not the attractiveness of the destination, coaches choose to take their teams to compete for a variety of reasons -- the venue, the level of competition or because they qualify, Buning said. Creative marketing strategies could reach these visitors while they are in the community where a tournament is located and let them know what's available, particularly when they come to a place they are not familiar with, Buning said. That especially applies to sports venues in rural areas where visitors may assume there are few or no off-field activities, he added. Communities seeking to engage these visitors could also market themselves in advance to leagues, event organizations, tournament event organizers, coaches and team facilitators, Buning said. Cross-promotions with local professional teams in the same

sport as a youth tournament could also make an impact, he said.

The study was commissioned by the Hamilton County Sports Authority.

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## EVENTS AND WORKSHOPS

## Image of Write Winning Grant Proposals

### Write Winning Grant Proposals

This seminar comprehensively addresses both conceptual and practical aspects that are associated with the grant writing process. Emphasis is given to idea development, identification of the most

appropriate granting agency, how to write for reviewers, and tips and strategies that are of proven value in presenting an applicant's case to reviewers. All participants will receive light breakfast, boxed lunch, and a copy of The Grant Application Writer's Workbook.

Tuesday, August 22

8:30 a.m. - 5:00 p.m.

Neuroscience Building, Goodman Hall 1030 Auditorium

[Register >>](#)

## Image of Communicating Science Series

### Communicating Science Series

Back by popular demand! This three-session series is designed to train participants to communicate complex scientific topics more effectively to non-experts like patients, learners, lawmakers, and

fundings. This program is free and open to all IUSM and IUPUI faculty and graduate students. Please note, if you register for this event, you will be registered for all three sessions.

Wednesday, August 23

Wednesday, September 6

Wednesday, September 20

[Register >>](#)

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## RECENT EXTERNAL FUNDING AWARDS

### Grants and Awards – June 2017

PI	Agency	Project Title	School	Department	Total
Shekhar, Anantha	LILLY ENDOWMENT, INCORPORATED	Indiana Collaborative Initiative for Talent Enrichment (INCITE)	MEDICINE	SCHOOL WIDE RESEARCH	\$25,000,000

Saykin, Andrew J	NATIONAL INSTITUTE ON AGING	Memory Circuitry in MCI and Early Alzheimeras Disease Prodrome: Molecular Drivers	MEDICINE	RADIOLOGY & IMAGING SCIENCES	\$3,384,970
Dent, Alexander L	NATIONAL INSTITUTE ALLERGY & INFECTIOUS DISEASES	The control of allergic immune responses by follicular regulator T cells	MEDICINE	MICROBIOLOGY & IMMUNOLOGY	\$2,670,577
Gunst, Susan J	NATIONAL HEART, LUNG AND BLOOD INSTITUTE	Smooth Muscle Mechanisms in Dynamic Airway	MEDICINE	CELLULAR & INTEGRATIVE PHYSIO	\$1,915,151

		Properties			
Gawrieh, Samer	NATIONAL INSTITUTE OF DIABETES, DIGESTIVE & KIDNEY	Fatty liver in HIV infected individuals	MEDICINE	GASTROENTEROLOGY	\$1,819,933
Perrin, Benjamin John	NATIONAL INSTITUTE ON DEAFNESS AND OTHER COMM. DIS	Cytoskeletal stability in stereocilia maintenance	SCIENCE	BIOLOGY	\$1,697,984
Gregg, Roxanne	U.S. DEPARTMENT OF EDUCATION	TRIO Upward Bound - Township	UNDERGRAD EDUCATION	UNIVERSITY COLLEGE	\$1,461,105
	U.S. DEPARTMENT	IUPUI Upward	UNDERGRAD	UNIVERSITY	



Gregg, Roxanne	OF EDUCATION	Bound - IPS	EDUCATION	COLLEGE	\$1,395,000
Howenstine, Michelle S	INDIANA COMMISSION FOR HIGHER EDUCATION	New Residency Position Funding 2017	MEDICINE	DEAN MED- EDUCATIONAL SUPPORT	855,000
Pasic, Amir	THE HENRY LUCE FOUNDATION INC	US-China Philanthropic Collaborative	LILLY FAMILY SCHOOL OF PHILANTHROPY	PHILANTHROPY	\$330,000
Badve, Sunil	SUSAN G. KOMEN BREAST CANCER FOUNDATION	Novel Strategies to Overcome Resistance to Standard Therapies in Breast Cancer	MEDICINE	PATHOLOGY AND LABORATORY MED	\$250,000

Clapp, D Wade	JOHNS HOPKINS UNIVERSITY	Testing the Pharmacologic role of Molecular Target inhibition on Plexiform Neurofibromas in a Genetically Engineered Mouse Model that closely Phenocopies Human Neurofibromatosis Type 1	MEDICINE	PED- NEONATAL BASIC RESEARCH	\$211,352
		Prevention and Recovery Center for			

<p>Breier, Alan</p>	<p>ESKENAZI HEALTH</p>	<p>Early Psychosis (PARC) and Coordinated Specialty Care (CSC) Network (YR1)</p>	<p>MEDICINE</p>	<p>PSYCHIATRY</p>	<p>\$156,857</p>
<p>Basile, David Patrick</p>	<p>AMERICAN HEART ASSOCIATION INCORPORATED</p>	<p>Role of renal endothelial side population as a source of progenitor activity during growth or response to injury</p>	<p>MEDICINE</p>	<p>CELLULAR &amp; INTEGRATIVE PHYSIOLOGY</p>	<p>\$154,000</p>
		<p>Prevention and</p>			

Breier, Alan	ESKENAZI HEALTH	Recovery Center for Early Psychosis (PARC) and Coordinator Specialty Care (CSC) Program 3	MEDICINE	PSYCHIATRY	\$153,709
Davis, Stephanie D	HOSPITAL FOR SICK CHILDREN	Tracking CF lung disease through the early years: Utility of the Lung Clearance Index	MEDICINE	PED-PULM CRITICAL CARE/ALLERGY	\$146,122
Payne, R. Mark	CHILDREN'S HOSPITAL MEDICAL	Pediatric Heart Network	MEDICINE	PED- CARDIOLOGY	\$136,977

	CENTER OF CINCINNATI	PrairieLand Consortium			
Grannis, Shaun J	THE PEW CHARITABLE TRUSTS	Evaluating the impact of data standardization and normalization on matching effectiveness	MEDICINE	FAMILY MEDICINE - ADMINISTRATION	\$127,506
Ray, Brad	INDIANA JUDICIAL CENTER	Phase Two: Evaluation of the Indiana Evidenced-Based Pretrial Pilot	PUBLIC & ENVIRONMENTAL AFFAIRS	SPEA	\$125,000
		Development of SHP2			

Pollok, Karen E.	PURDUE UNIVERSITY	inhibitors for targeted anti- cancer therapy	MEDICINE	PED- HEME/ONC BASIC RESEARCH	\$114,158
Lahm, Tim	AMERICAN HEART ASSOC- GREATER MIDWEST AFFILIATE	Apelin- mediated regulation of right ventricular angiogenesis in pulmonary hypertension	MEDICINE	PULMONARY	\$110,456
Downs, Stephen M	ESKENAZI HEALTH	Child Health Informatics Research and Development Laboratory (CHIRDL) Service for Eskenazi	MEDICINE	PED-HEALTH SERVICES RESEARCH	\$110,000

Becker, Steven G	OLD NATIONAL BANK FOUNDATION	Indiana University School of Medicine- Evansville Simulation Center Development	MEDICINE	IUSM- EVANSVILLE	\$100,000
Carlson, Timothy J.	GANNETT FOUNDATION	A Community Thrives: IU School of Dentistry Student Outreach Center	DENTISTRY	DENTISTRY- RESEARCH	\$100,000
Abu-Sultaneh, Samer	INDIANA UNIVERSITY HEALTH	I-PREP: Indiana Pediatric Readiness	MEDICINE	PED- PULMONARY INTENSIVE	\$100,000

		Emergency Project		CARE	
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## 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 below to search online tools.

### NATIONAL ENDOWMENT FOR THE ARTS

**Arts Education Statewide Data Infrastructure Project:** This opportunity will support state-level extraction, analysis, and reporting of K-12 arts education data that is already being collected. Easy access to timely, reliable data about arts education is a prerequisite for knowing how much and to whom arts education is being delivered in schools. These data can help decision-makers determine whether they are meeting national and state-approved policies and content



standards regarding arts education.

In addition, these data can help state departments of education, state arts agencies, funders, and others to direct resources to increase the likelihood that all students will benefit from an education that includes the arts.

*Deadline: April 12, 2018*

[https://www.grants.gov/web/grants/view-opportunity.html?  
oppld=292119](https://www.grants.gov/web/grants/view-opportunity.html?oppld=292119)

## NATIONAL ENDOWMENT FOR THE HUMANITIES

**Next Generation Humanities PhD Implementation Grants:** In recent years, research published by Humanities Indicators, among others, has revealed that humanities PhDs pursue careers in many different professions--both inside and outside academia. Yet most humanities PhD programs in the United States still prepare students primarily for tenure-track professor positions at colleges and universities. The increasing shortage of such positions has changed students' expected career outcomes. NEH therefore hopes to assist universities in implementing a new model of doctoral education, which can both transform the understanding of what it means to be a humanities scholar and promote the integration of the humanities in the public sphere.

This opportunity supports universities in instituting wide-ranging changes in humanities doctoral programs. Humanities knowledge and

methods can make an even more substantial impact on society if students are able to translate what they learn in doctoral programs into a multitude of careers. Next Generation PhD Implementation Grants are designed to produce plans that will transform scholarly preparation in the humanities at the doctoral level. Students will be prepared to undertake various kinds of careers, and humanities PhD programs will increase their relevance for the 21st century.

NEH will support activities specific to each institution's needs: these may include (but are not limited to) multi-departmental collaboration, transformations in curricula, modifications in stipend structures, altered formats for dissertations, commitment to collection of alumni career information and outcomes, partnerships with non-university entities, as well as a pledge to encourage doctoral students to explore and prepare for multiple career trajectories.

*Deadline: November 29, 2017*

<http://www.neh.gov/grants/challenge/next-generation-humanities-phd-implementation-grants>

## NATIONAL INSTITUTES OF HEALTH

**Resource Program Grants in Bioinformatics (P41):** This opportunity is intended to support continued operation, improvement and maintenance of bioinformatics tools or resources, user training and services, and wide dissemination of the tools or resources.

To qualify for support, the research & deliverables must be of

demonstrable value toward advancing research utilizing animal model systems in the biomedical sciences and must also be of particular importance to those seeking to understand the biological basis of human and animal development and the etiology of structural birth defects.

Examples of appropriate research topics include, but are not limited to: 1) Efforts to curate & annotate unique collections of data, information or knowledge that support learning & research utilizing animal model systems; 2) Software for information & knowledge processing, including information extraction, integration of data from heterogeneous sources, event detection, and feature recognition within these data sets; 3) Tools for analyzing and/or storing large datasets, including genomic and proteomic data, data regarding gene and protein expression in relation to cellular, anatomical, and/or developmental coordinates; 4) Data sets and tools for analysis of gene regulatory networks, protein-protein interaction networks, epigenetic regulatory mechanism, systems biological approaches, and other tools for understanding normal and abnormal biological function and/or development; and 5) Systems for knowledge representation, including vocabularies, ontologies, simulations and virtual reality, retrieval tools and intelligent agents for scientific information related to developmental processes.

Applicants are strongly encouraged to consult with the Scientific/Research Contact to ensure that their proposal reflects program & NICHD objectives

*Deadlines: Letter of Intent: August 25, 2017;*

*Application: September 25, 2017*

<http://grants.nih.gov/grants/guide/pa-files/PAR-14-357.html>

### **Consortium Linking Oncology with Thrombosis (CLOT) (U01):**

This opportunity encourages studies in selected cancer types that expand mechanistic investigation into the intersection between cancer and thrombotic pathways; and 2) apply mechanistic insights towards the identification and development of biomarkers of thrombotic risk or cancer progression and new strategies for preventing or treating the deleterious interplay between cancer, cancer therapy, and hemostasis/thrombosis.

**Examples of Research Areas of Interest** Based on the current state of science & needs identified by the community, areas of research interest are as follows:

- Delineation of mechanisms that known thrombotic-risk predictors in cancer patients (platelet & leukocyte counts, BMI) contribute to thrombosis
- Identification of new biomarker candidates of thrombosis in cancer patients
- Development & improvement of thrombotic risk score(s), specifically in cancer patients
- Identification of prothrombotic mechanisms of cancer/cancer therapies & development of approaches to ameliorate the prothrombotic effects
- Development of strategies to alter the impact of hemostatic/thrombotic pathways on cancer development & progression
- Evaluation of anticoagulants on cancer progression and efficacy of cancer therapeutics
- Identifying effective agents that may diminish bi-directional potentiation effect between cancer & thrombosis.

Applicants are encouraged to contact the [NHLBI Scientific Research Contacts](#) to address questions concerning their application and its responsiveness

*Deadline: October 23, 2017*

<https://www.grants.gov/web/grants/view-opportunity.html?oppld=295432>

### **Central Neural Mechanisms of Age-Related Hearing Loss (R01):**

The purpose of this opportunity is to encourage basic or clinical research applications that investigate central neural mechanisms of age-related hearing loss in older adults and/or in relevant animal models. This opportunity is driven by the need to address a major gap in our understanding of the central pathways and neural networks that are involved in hearing loss and how these may be altered in the context of the aging brain, as well as how natural aging influences central auditory plasticity.

*Deadlines: Letter of Intent: October 08, 2017;*

*Application: November 08, 2017.*

<https://www.grants.gov/custom/viewOppDetails.jsp?oppld=295652>

## NATIONAL SCIENCE FOUNDATION

**Algorithms for Threat Detection (ATD):** The ATD program will support research projects that aim to develop novel mathematical and statistical algorithms for analysis of large geospatial datasets. Means to quantify confidence levels are desired, as are insights into new spatiotemporal datasets and valuable means of assembling them. Models may range from those that address activities of individuals to those applicable to small groups or entire nations. These models may leverage mathematical research areas including, but not limited to, point processes, time series, dynamical systems, partial differential

equations, and optimal control. Models that depend almost entirely on the spatial and temporal aspects of the data are of greatest interest. General applications of interest include threat detection, predictive analytics, human mobility, and human geography. DMS and NGA recognize the needs and opportunities for the mathematical sciences community to develop methodology for reducing threats from a variety of sources. This program seeks ambitious and creative research proposals from individual investigators and collaborative groups in the mathematical sciences community. Research collaborations among mathematical scientists and social, behavioral, and economic scientists are encouraged.

*Deadline: February 20, 2018*

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503427](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503427)

### **Innovations at the Nexus of Food, Energy & Water Systems**

**(INFEWS):** The overarching goal of INFEWS is to catalyze well-integrated interdisciplinary research efforts to transform scientific understanding of the FEW nexus in order to improve system function & management, address system stress, increase resilience, and ensure sustainability.

INFEWS is designed specifically to attain the following goals: 1) Significantly advance the understanding of the food-energy-water system through quantitative and computational modeling, including support for relevant cyberinfrastructure; 2) Develop real-time, cyber-enabled interfaces that improve understanding of the behavior of FEW systems and increase decision support capability; 3) Enable

research that will lead to innovative system and technological solutions to critical FEW problems; and 4) Grow the scientific workforce capable of studying and managing the FEW system, through education and other professional development opportunities.

INFEWS outlines 4 research tracks: 1) FEW System Modeling; 2) Visualization & Decision support for Cyber-Human-Physical Systems; 3) Research to Enable Innovative Solutions; and 4) Education & Workforce Development.

*Deadline: March 6, 2018*

[https://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505241&org=NSF&sel\\_org=NSF&from=fund](https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505241&org=NSF&sel_org=NSF&from=fund)

### **Research Training Groups in the Mathematical Sciences (RTG):**

The RTG program supports efforts to improve research training by involving undergraduate & graduate students, postdoctoral associates, and faculty members in structured research groups anchored by a common theme. The groups may include researchers and students from different departments and institutions, but the research-based training and education activities must be based in the mathematical sciences. Addressing all stages (from undergraduate through postdoctoral) of trainee involvement is essential in RTG proposals. Proposals that focus on only one stage are not appropriate for submission to the RTG activity. While emphasis on graduate training in RTG projects is appropriate and natural, a substantial plan for involving undergraduates is necessary.

Successful proposals will include collaborating faculty with a history of research accomplishments. This group should have a history of working with students and/or postdoctoral investigators, and they should present a strong plan for recruiting students who are U.S. citizens, nationals, or permanent residents into their program. The RTG program is not meant to establish new research groups, but to enhance the training activities of existing groups with strong research records.

Graduate Traineeships. Graduate trainees form a pivotal component of the integration of activities in RTG grants. Their participation should result in: 1) involvement with research activities that include undergraduates, other graduate students, postdoctoral associates, and/or faculty members; 2) graduate education that is both broad and deep; and 3) significant teaching experience.

*Deadline: June 07, 2018*

[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=5732](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5732)

U.S. DEPT. OF ENERGY

**Research & Development for Next Generation Neutrino-less Double Beta Decay Technology:** This opportunity seeks applications for research & development that will allow existing technology candidates to demonstrate down-selection criteria for the next generation of neutrino-less double beta decay measurements.

Determining the characteristics of neutrinos is an ongoing and



compelling challenge. Measurements of neutrino oscillations have clearly shown that the three weak flavor eigenstates of neutrinos are mixtures of three mass eigenstates and that at least one of the three mass states must have non-zero mass. However the mass hierarchy, either "normal" with two light neutrinos and one heavy neutrino or "inverted" in which there are two heavy neutrinos and one light neutrino, remains uncertain. All this becomes even more intriguing if sterile neutrinos exist and mix with the three observed neutrino flavors. This solicitation focuses on neutrino-less double beta decay, the second order weak interaction in which the nucleus changes atomic number by two units and creates two electrons but no neutrinos or antineutrinos. This process violates lepton number conservation. If observed, it would establish that neutrinos are their own antiparticle (i.e. Majorana rather than Dirac fermions), provide a scenario that could impact our understanding of the matter-antimatter asymmetry of the universe, and suggest a new mechanism for mass generation beyond the Standard Model.

*Deadlines: Pre-Application: September 19, 2017;*

*Application: October 28, 2017*

[http://www.grants.gov/web/grants/view-opportunity.html?  
oppld=288167](http://www.grants.gov/web/grants/view-opportunity.html?oppld=288167)

*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--arranged by the Vice President for Research. Those interested in securing assistance from Cornerstone must

submit a 2 page summary of their research project and a CV or biosketch to the VP for Research Office at [vpr@iu.edu](mailto:vpr@iu.edu). Prior to submission, the IUPUI Office of the Vice Chancellor for Research is offering assistance with the 2 page summaries. For more information, contact Steven Chin [schin@iupui.edu](mailto:schin@iupui.edu).

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