



IIT UPDATE

INSTITUTE FOR INTEGRATIVE TOXICOLOGY



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Sikarskie Retires After 44 Years as Wildlife Veterinarian at MSU

Dr. James Sikarskie, IIT-affiliated faculty member and zoo and wildlife veterinarian in MSU’s College of Veterinary Medicine, retired this summer after 44 years of teaching and research at MSU. Growing up on a dairy farm near Manistique in the upper peninsula of Michigan with seven brothers, there weren’t many experiences in Sikarskie’s young childhood that didn’t involve animals. Between the farm animals and exploring the countryside with his brothers while hunting and fishing, Sikarskie knew a career with animals was in his future. “I was always interested in wildlife and animals and veterinary medicine, and from a very early age, I wanted to be a wildlife veterinarian.”

Especially influenced by the first Earth Day in 1970 and the morbid predictions that birds of prey were at risk of being wiped out in just three decades due to environmental contaminants, Sikarskie gave a speech at his high school graduation a month later urging his fellow students to focus on the environment. He encouraged them to accept the challenge to preserve the animals and wildlife they had grown up with for future generations to enjoy. Sikarskie took this challenge personally, crossed the Mackinaw Bridge for only the second time in his life and headed to MSU, which had the only veterinary school in the state. After completing his bachelors and DVM at MSU, Sikarskie was encouraged to stay on as the first faculty member of

MSU’s new zoo and wildlife program. Forgoing his original plan to head back to the U.P. for private practice, Sikarskie gladly accepted the role and that same year began his MS in Wildlife Management and began providing veterinary services for Potter Park Zoo. Sikarskie went on to be the zoo’s official veterinarian for nearly 30 years along with his role at MSU.

At Sikarskie’s ceremonial final lecture, held in January 2019, Bari Olivier, chair of the small animal clinical sciences department at MSU, introduced Sikarskie with this sentiment, “People who love to teach can’t hide it, and Jim loves to teach.” The department estimates that more than 5,000 veterinary students, interns and residents benefited from Sikarskie’s wildlife and exotic expertise. Which is no surprise that when asked about the favorite part of his job, Sikarskie replied, “It was warping all those young minds, in a good way. That’s a lot of responsibility but it is really gratifying when they grab on to your interest and enthusiasm and you can just pass it forward.” He often gives a similiar lecture to the one he gave to his graduating classmates in 1970 – while many birds of prey have been delisted from the endangered species list – he still encourages young people to be vigilant in the protection of our environment for the future. Sikarskie believes his legacy is to encourage young minds to take up the fight he has been

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Sikarskie

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working on for the past 44 years. He is most proud of lecturing to all of those veterinary students on the important role hunting and fishing have on wildlife population management, along with his years of research and working closely with state and federal wildlife agencies.

Sikarskie spent much of his career at MSU studying bald eagles as indicators of environmental quality in and around the Great Lakes Basin. Over the decades he has seen the eagle population climb from dwindling numbers to now upwards of 1,000 known nesting pairs of bald eagles in Michigan. At one time, he and his team knew where most every active eagle nest in the state was located. Now they try to monitor as many nests as possible out of representative water sheds and areas of concern, because as Sikarskie says, "Eagles are what they eat. They are the perfect environmental monitor." At Sikarskie's suggestion, when eagles were banded by the Fish and Wildlife Service, they took the time

to draw blood and pull feathers to do mercury analysis to analyze for environmental contaminants. Sikarskie has also used his position on the American Veterinary Medical Association's Committee on Environmental Issues, to work at a national level to influence environmental reform that affects animals and humans alike. Most recently, Sikarskie helped author a position encouraging use of non-toxic alternatives for lead in lead ammunition and fishing gear which would lead to a lower mortality rate among animals inadvertently exposed to this contaminant in the environment.

Looking forward, Sikarskie is excited to spend more time with his three grandsons and looks forward to teaching them how to garden, hunt and fish. He plans to travel with his wife, fish with his brothers and spend more time with his family. ♡

Right: Dr. James Sikarskie with his award for Wildlife Conservationist of the Year from the Michigan United Conservation Clubs.



IIT's NIEHS Training Grant Renewed

The IIT is proud to announce that the National Institute of Environmental Health Sciences (NIEHS) Training Grant, that they have received with continuous funding since 1989, has been renewed once again. The latest renewal, effective July 1, 2019, will provide funding for the next 5 years.

The training grant provides stipend support for 7 predoctoral and 2 postdoctoral fellows each year. Universities compete nationally for training grants from NIEHS. The longstanding support by NIH of the MSU-IIT testifies to the excellence that the EITS program has maintained over three decades in train-

ing graduate students and postdoctoral fellows, many of whom have become leaders in the field of toxicology.

This renewal application was led by EITS graduate program director, Dr. John LaPres. ♡

IIT Faculty Achievements Summer 2019

Jack Harkema

University Distinguished Professor, The Albert C. and Lois E. Dehn Endowed Chair in Veterinary Medicine, Department of Pathobiology and Diagnostic Investigation

Dr. Jack Harkema, is the recipient of the 2019 Thomas T. Mercer Joint Prize Award from the American Association of Aerosol Research (AAAR) and the International Society for Aerosols in Medicine (ISAM). The award recognizes excellence in the areas of pharmaceutical aerosols and inhalable materials. The award honors the legacy of Thomas T. Mercer, an outstanding researcher and author whose work encompassed aerosol physics and chemistry as well as inhalation toxicology, industrial hygiene, and health physics.

The selection of Dr. Harkema as the 2019 recipient was announced at the international congress of ISAM in Montreux, Switzerland recently

and will be announced again at the annual meeting of the AAAR in Portland, Oregon later this year.

In addition to being an IIT-affiliated faculty member, Dr. Harkema is a University Distinguished Professor and the Albert C. and Lois E. Dehn Endowed Chair in Veterinary Medicine in the Department of Pathobiology and Diagnostic Investigation at Michigan State University. He is also the Director of the Laboratory for Environment and Toxicologic Pathology and the Mobile Air Research Laboratories (AirCARE 1 and 2) at MSU.

Congratulations to Dr. Harkema on this prestigious honor!



Cheryl Murphy

Associate Professor, Department of Fisheries and Wildlife

Dr. Cheryl Murphy recently received the Chandler-Misener Award from the Journal of Great Lakes Research, along with a team of three other MSU Department of Fisheries and Wildlife researchers.

The Chandler-Misener Award was created in 1974 to honor D.C. Chandler and A.D. Misener, the International Association for Great Lakes Research's first presidents.

The award is presented to the authors of the "most notable" peer-reviewed paper in the current edition of the Journal of Great Lakes Research.

Judges touted the research team's innovative

approach, as well as the paper's clarity in addressing the long-term challenges of lake trout stocking efforts.

"It's truly an honor to receive the Chandler-Misener Award, recognizing our hard work on this important topic," said Murphy, an associate professor in the MSU Department of Fisheries and Wildlife. "I'd also like to recognize our colleagues on this project from the University of Maryland Center for Environmental Science and the U.S. Geological Survey Great Lakes Science Center."



John Goudreau

Associate Professor, Department of Pharmacology and Toxicology, Department of Neurology and Ophthalmology

Dr. John Goudreau has been named the Michigan State University College of Osteopathic Medicine's associate dean for research. He also will be the co-director of the DO-PhD training program, a combined degree program where students are trained to become physician scientists.

An associate professor in the departments of neurology and ophthalmology, as well as pharmacology and toxicology, Goudreau is the director of the Movement Disorders Clinic. He also serves as associate department chair for research in neurology and ophthalmology.

An alumnus of the college, Goudreau received his osteopathic doctorate and Ph.D. in neuropharmacology in 1995. He completed a residency in neurology at the Mayo Clinic in 2000, earning the Mayo Brothers Distinguished Fellowship Award. After residency, he completed a movement disorders fellowship at the Mayo Clinic, with a special interest in the genetics of movement disorders and advanced clinical training in the neurophysiology and botulinum toxin treatment of abnormal movements.



Gina Leininger

Assistant Professor, Department of Physiology, Neuroscience Program

Dr. Gina Leininger is the 2019-20 recipient of the American Physiology Society's (APS), Central Nervous System Section New Investigator Award.

The society's New Investigator Award recognizes outstanding scientists in the early stages of their career who have made significant contributions and show great promise in their field of study.

"No investigator is an island," said Leininger, who joined the department of physiology in the College of Natural Science in 2012. "It takes a team to do great science, and this award

recognizes my team of talented students and technicians whose hard work, enthusiasm and insight are revealing new ways that the brain works to regulate behavior and body weight."

Leininger's LHA-focused research has been supported by grants from the National Institutes of Health for the last seven years, and her excellence in teaching and mentoring graduate students has earned her two College of Natural Science awards: the Teaching Prize in 2018 and the Teacher Scholar Award in 2016.



Ilce Medina Meza

Assistant Professor, Department of Biosystems and Agricultural Engineering

Dr. Ilce Medina Meza was selected to participate in the IFT Emerging Leaders Network Program which took place at the Institute for Food Technologists 2019 Annual Meeting in New Orleans, LA on June 2 - 5, 2019.

The Emerging Leaders Network is a highly selective global leadership program established for new professionals in the science of food who are eager to expand their leadership skills. The

program is designed to bridge the gap between the participant's academic experience and their on-the-job training.

Participants attend a two-and-a-half day intensive leadership seminar; establish meaningful, lifelong connections; gain new insights into scientific and technological issues; and develop critical leadership skills needed to communicate the value of the profession. 🍎



Kaminski Named CRIS Director



IIT Director, Dr. Norbert Kaminski, will also serve as the director of the Center for Research on Ingredient Safety (CRIS) at MSU. His appointment comes after successfully

serving as the center's interim director.

"Norb's leadership has proven invaluable, and we are confident that he will continue to elevate the center through his innovative research and dedi-

cation to sharing the latest science," said Doug Buhler, assistant vice president of Research and Innovation at MSU and director of AgBioResearch, the administrative home for CRIS.

CRIS is an independent, academic, science-based center that serves as a reliable and unbiased source for information on the safe use of chemical ingredients in consumer-packaged goods, including foods, beverages, cosmetics, and household consumer products. CRIS implements a multi-prong approach of research, education, and outreach allowing consumers, manufacturers, and policymakers to make evidence-informed decisions.

Kaminski will continue to focus on CRIS's core mission to educate the next generation of food scientists, conduct research, and provide insight on the safety of ingredients in food and consumer products to the greater community through outreach and risk communication.

"Norb brings his network, extensive knowledge, and proven record of scholarship and mentorship to CRIS, and we are thrilled he will continue to serve as CRIS director," said Ron Hendrick, Dean of the College of Agriculture and Natural Resources at MSU. 🐾

EITS Student Kevin Baker Awarded John A. Penner Endowed Research Assistantship



EITS graduate student, **Kevin Baker**, received the John A. Penner Endowed Research Assistantship for the academic year 2019-2020. Baker is a student working with Dr. James Luyendyk. The award includes a stipend of \$31,500, health insurance, and 100% of all tuition and fees.

When asked what this award means to him, Baker replied "It is truly an honor to receive this prestigious fellowship as it sets me up to finish my graduate work determining the mod-

ulators of coagulation during liver disease. Dr. Penner was a highly distinguished doctor that did a phenomenal service to Michigan State University, as is seen by the numerous honors

and awards that he achieved during his career. I am incredibly humbled to receive a fellowship named after him."

In 7 years, Baker hopes to be somewhere he can truly dive into his interest in toxicology and its application to human health. "Toxicology is the perfect way to understand and learn new things. For me, the best way to learn something is taking it apart (sometimes breaking it in the process), and toxicants are fantastic tools to learn biochemical pathways and how they function by disrupting them. There is always something new to be learned in toxicology, whether it is a toxic plant recently identified or a new technology to test for a designer drug. I am really hoping to be in a career that allows me to use my toxicology training, whether it be at a private company, a government position, or a criminalistics atmosphere," said Baker. 🐾

Wierenga Selected for 2019 Gina M. Finzi Memorial Student Fellowship Program



EITS graduate student, **Kathryn Wierenga**, was selected as one of six recipients to receive the prestigious 2019 Gina M. Finzi Memorial Student Summer Fellowship from the Lupus Foundation of America. The fellowship program was developed to cultivate an interest in lupus research among young scientists. The projects from this year's awardees encompass a multitude of scientific areas that are critical to moving the lupus research field forward, including lupus nephri-

tis, genetics, neuropsychiatric lupus and disease education. The six awardees are mentored by an established lupus investigator, ensuring they receive the support and guidance they need. The results of research by the awardees will contribute to new therapies, prevention strategies and educational interventions to better understand, detect and treat people with lupus. Since its founding, the Gina M. Finzi Memorial Student Summer Fellowship Program has supported the work of nearly 200 young investigators throughout North America.

Wierenga is mentored by IIT-affiliated faculty member, Dr. James Pestka, and was awarded for her project, "Unraveling How Omega-3 Fatty Acids Suppress Lupus Flaring." 🐾

Recent EITS Graduates Summer 2019



Michael Rizzo
Cell and Molecular Biology
Mentor, Norbert Kaminski

Dr. Michael Rizzo received his Ph.D. after completing the dual major program in Cell and Molecular Biology and Environmental Toxicology. His dissertation was, " *Δ^9 -Tetrahydrocannabinol suppresses human monocyte activation and monocyte-mediated astrocyte inflammation: Implications for HIV-associated neuroinflammation.*"

Rizzo is now a Research and Development Toxicologist with PepsiCo in Barrington, IL. Rizzo is part of a team that provides product and ingredient safety evaluations. He also works and interacts with trade associations and scientific institutions to help promote science-based policies regarding food safety.

Congratulations Dr. Rizzo!

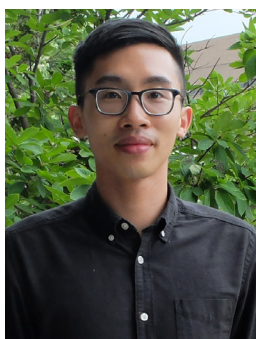


Katherine Roth
Cell and Molecular Biology
Mentor, Bryan Copple

Dr. Katherine Roth received her Ph.D. after completing the dual major program in Cell and Molecular Biology and Environmental Toxicology. Her dissertation was, "*Regulation and Function of Macrophages during Acute Liver Injury and Acute Liver Failure.*"

Roth is currently interviewing for postdoctoral positions. She hopes to find something with a focus on immunological mechanisms involved in human disease.

Congratulations Dr. Roth!



Jiajun (Brian) Zhou
Microbiology and Molecular Genetics
Mentor, Norbert Kaminski

Dr. Brian Zhou received his Ph.D. after completing the dual major program in Microbiology and Molecular Genetics and Environmental Toxicology. His dissertation was, "*The Role of LCK and PD-1 in TCDD-mediated Suppression of the IgM Response by Human CD5+ Innate-like B Cells.*"

Zhou will be working at Eli Lilly in Indiana as a postdoctoral researcher in the autoimmunity group. He will be mainly focusing on identifying targets for drug development on autoimmune diseases, like Lupus and Rheumatoid Arthritis.

Congratulations Dr. Zhou!

Two IIT Students Receive Prestigious NIH Ruth L. Kirschstein Fellowship Awards

Two IIT-affiliated students (and recent NIEHS Training Grant trainees) recently received prestigious Ruth L. Kirschstein Fellowship Awards from NIH.



Kathryn Wierenga, EITS graduate student training with Dr. James Pestka, is the recipient of the F31 Ruth L. Kirschstein Predoctoral Individual National Research Service Award. This fellowship will provide Wierenga with tuition and graduate stipend for the next three years so she can continue research on her thesis project, "*Omega-3 Fatty Acid Suppression of Silica-Induced Inflammation Activation in a Novel*

Alveolar Macrophage Model." The purpose of the F31 is to enable promising predoctoral students with potential to develop into a productive, independent research scientists,

to obtain mentored research training while conducting dissertation research.



Lauren Hardy, postdoctoral trainee with Dr. James Luyendyk, is the recipient of the F32 Ruth L. Kirschstein Postdoctoral Individual National Research Service Award for her project, "*Mechanisms of fibrin(ogen)-directed macrophage activation in liver toxicity.*" This fellowship will allow Hardy to continue her in depth research on how novel modifications of the blood coagulation factor fibrin(ogen) drive macrophage-mediated

tissue repair of the liver after acetaminophen overdose. Hardy is excited for the opportunities the fellowship will provide both now and in the future. ♡

Redesigned IIT Website Mobile Friendly

Have you visited our website this summer? IIT's website, iit.msu.edu, is now mobile friendly with a clean, modern design. The refreshed website also features a news section, an

events section and a faculty directory searchable by research interest and department/program affiliation. Updated navigation and additional feature sections on the main page allow visitors to

connect quickly with areas of IIT that interest them. Visit iit.msu.edu today to check it out! 📱

MICHIGAN STATE UNIVERSITY Search...

Affiliated Faculty
The IIT is home to over 70 affiliated faculty members from twenty-two different academic departments across campus. They conduct diverse, interdisciplinary research that spans investigations of environmental, occupational, food-borne and pharmaceutical agents.
[Meet Our Faculty](#)

Graduate Training
The IIT offers a multidisciplinary training program in Environmental and Integrative Toxicological Sciences (EITS) that provides doctoral students and postdoctoral fellows with extensive research training in a specific basic science discipline as well as toxicology.
[Learn About EITS](#)

Our Centers
The IIT houses two centers that focus on collaborative research and training efforts - the NIEHS-funded Superfund Research Program and the Center for Research on Ingredient Safety (CRIS).
[Learn More](#)

Stay Connected
[Toxicology Track](#): Bi-weekly electronic newsletter with seminar listings, upcoming events, courses, and job postings
[Update Newsletter](#): Semi-annual newsletter featuring faculty and student news and accomplishments
[Annual Report](#): Yearly publication highlighting successes and publications over the past year

[index.html](#)

Student Accomplishments and Awards



EITS student, **Vanessa Benham**, authored an excellent article, "Obesity poised to overtake smoking as leading preventable cause of cancer," for the Lansing State Journal (LSJ). The article was picked up nationwide and published broadly. Benham is a doctoral student with Dr. Jamie Bernard. The article discusses obesity in America and how it is connected to 13 different kinds of cancer including ovarian, thyroid, uterine and more.



Nikita Saha Turna, EITS graduate student with Dr. Felicia Wu, received the George A. Purvis Endowed Nutrition Scholarship and the Sara Lee Endowment Fund for Food Safety from the MSU Department of Food Science and Human Nutrition.



The IIT on Facebook

Did you know the IIT has a Facebook account? Keep up to date with seminar announcements, upcoming events and news links right from our page. When you visit, make sure to click "Like" so you don't miss out on important IIT news!

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Exciting Lineup for IIT Seminar Series Fall 2019

The IIT is thrilled to host three prestigious speakers this fall to begin the 2019/2020 IIT Seminar Series:



Sept. 10: Tracie Baker

Assistant Professor, Institute of Environmental Health Sciences, Department of Pharmacology, Wayne State University

Dr. Baker will speak on, “Circulating Molecular Shrapnel: Identifying links between inhaled toxicants and neurological outcomes,” on September 10, 2019, at 11:00 a.m. in 162 Food Safety and Toxicology Building. Dr. Jamie Bernard will host this seminar.

Lecture Synopsis:

We have shown that zebrafish (*Danio rerio*) are an ideal model for evaluating transgenerational effects of certain toxicants and their role in the fetal basis of adult disease. We utilized this model to identify transgenerational effects of a known endocrine disrupting chemical (EDC), dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin; TCDD). Using molecular tools, we have uncovered critical genes and epigenetic regulation underlying adverse health endpoints and provide critical insights into transgenerational, environmentally-induced disease. This seminar will also give an overview of other recent projects in the Baker WATER (Warrior Aquatic Translational and Environmental Research) Lab including: investigation of the occurrence and effects of endocrine disruption due to environmental contaminants in Detroit waterbodies, exogenous factors linked to the development of childhood leukemia, and the occurrence of microplastics in drinking water and the consequential impact on human health.



Oct. 8: Patrick Allard

Assistant Professor, Institute for Society and Genetics, University of California Los Angeles

Dr. Allard will speak on, “Epigenetic Mechanisms of Inheritance of Environmental Exposures,” on October 8, 2019, at 11:00 a.m. in 162 Food Safety and Toxicology Building. Dr. Sudin Bhattacharya will host this seminar.

Lecture Synopsis:

Germ cells are the bridge between generations and their integrity is paramount to the health and viability of all organisms. However, how germ cells integrate environmental cues and

mediate transgenerational inheritance are still poorly understood. Here, we describe the use of several model systems, including *C. elegans* and ES cells-derived mammalian germ cells, to better understand how the complex developmental program unique to germ cells is affected to environmental exposures. The combination of these models allows us to dissect the genetic pathways at the root of germline dysfunction, epigenetic impact, and transgenerational effects.



Nov. 12: Gary Krishnan

Senior Research Fellow Medical, Eli Lilly and Company

Dr. Krishnan will speak on, “Leveraging Exercise to Slow Aging Related Co-Morbidities,” on November 12, 2019, at 11:00 a.m. in 162 Food Safety and Toxicology Building. Dr. Timothy Zacharewski will host this seminar and the MSU BEST Program will be co-sponsoring.

Lecture synopsis will be available at a later date.

The spring 2020 seminar schedule will include:

- » **Bernard Goldstein**, Professor Emeritus and Dean Emeritus, University of Pittsburgh Graduate School of Public Health, will speak on, “Challenges to Science: Changes to EPA’s Advisory Processes and the EU’s Use of the Precautionary Principle to Ban Agricultural Imports,” on January 14.
- » **Mark Harris**, Managing Principal Scientist and Cofounder, ToxStrategies, will speak on February 11.
- » **Teresa WM Fan**, Professor, Edith D. Gardner Chair in Cancer Research, Toxicology and Cancer Biology, University of Kentucky, will speak on April 14.
- » **Donna Zhang**, Professor, Department of Pharmacology and Toxicology, University of Arizona, will speak on May 12.

If you are interested in meeting with any of the speakers while they are on campus, please contact Kasey Baldwin, kbaldwin@msu.edu. We hope you can join us for one or all of these exciting seminar opportunities! 🍷

Save the Date: Upcoming Events Fall 2019

» **Center for Research on Ingredient Safety Annual Meeting**
November 13 - 15, 2019:
MSU’s Executive Henry Center

» **IIT Research Evening**
December 4, 2019:
MSU Kellogg Center



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