

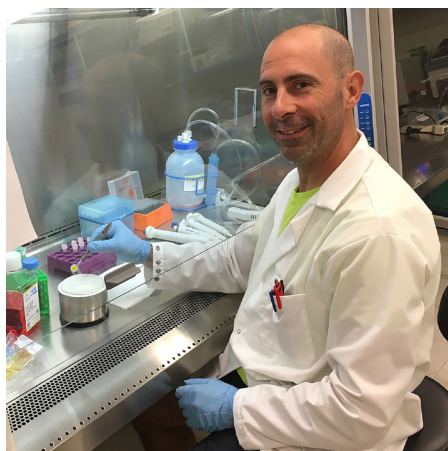
The Alumnidae

Department of Integrative Biology, Life Sciences West 501

<http://integrativebiology.okstate.edu>

405-744-5555

Dr. Matteo Minghetti receives National Science Foundation grant



Dr. Matteo Minghetti was recently awarded a \$245,710 grant from the National Science Foundation (NSF) to support work on the interaction and potential toxicity of nanoparticles on living cells, specifically fish intestinal cells. Nanoparticles (or nanopowder) are microscopic particles with at least one dimension less than 100 nanometers (nm). Due to improved material properties at the nanoscale level, nanoparticles can be found almost everywhere in our day-to-day life, from paint to toothpaste, and they are the subject of intense research due to their potential applications in the optical, biomedical, and electronic fields. In addition to technological advancements associated with nanoparticles, the boom in nanoparticle production also raises questions about their potential impact on human health and the environment. Dr. Minghetti will be using intestinal cells from fish as an artificial model to study the interactions occurring between nanoparticles and intestinal cells at the atomic level.

In addition to funding from NSF, Dr. Minghetti was also awarded a 1 year, \$37,800 grant from the Alternative Research & Development Foundation to develop alternatives to whole animal testing using gill cells from fish. In the United States alone, it is estimated that over 6 million fish are used yearly to test the toxicity of effluent water coming from municipalities, hospitals, and other industrial operations. An alternative to whole animal testing would be highly desirable for not only ethical reasons but also from the practical standpoint of reducing cost and time of testing.

Greetings from the Department Head

Hello and happy summer! As I write this, we have had another successful academic year with commencement ceremonies for Spring 2018 graduates having just concluded. We applaud our nearly 100 Physiology, Zoology, and Biology undergraduates who received their Bachelor of Science degrees, as well as our five graduate students who received their Masters and five who received their PhD. Congratulations to all! We aren't resting on our laurels, however; our departmental undergraduate advisors Libby, Dan, and Vicki have been busy participating in recruiting events, meeting prospective students and their families, and preparing for the next rounds of transfer student and freshman enrollment. Enrollment continues to increase and we will likely have another record enrollment in Fall 2018. Our graduate program coordinator Dr. Jen Grindstaff has been busy managing new graduate student applications and letters of offer; we expect another excellent incoming class of graduate students. Many thanks to our staff, students, and faculty for being wonderful ambassadors for our degree programs! I hope you enjoy reading about some of their many accomplishments elsewhere in this newsletter.

After ten years of service as department head, Dr. Loren Smith stepped down in July 2017 and back into research and instruction. Thank you to Loren for his excellent leadership as head, during which time we experienced tremendous success in meeting our teaching and research missions. As interim head, it has been my privilege to work with our wonderful staff, faculty, and students and to meet many of our talented and generous alumni. Go Pokes!

Matthew Lovern, Interim Head
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New teaching assistant professor joins Integrative Biology

Dr. Jason Bruck received his Ph.D. in 2013 from the University of Chicago exploring the limits of dolphin memory and the meaning of their whistles. This is Dr. Bruck's second time as a member of the IB faculty as he was a Visiting Assistant Professor here in 2014-15. For the last two years Dr. Bruck has been at the University of St. Andrews' Sea Mammal Research Unit in Scotland investigating the nature of dolphin signature whistles under a European Commission funded Marie Skłodowska Curie Independent Fellowship. This research led to the discovery of the 'name'-like use of signature whistles as representational calls as well as the previously unknown social function of dolphin urine as a gustatory identity signal. Dr. Bruck is currently working with the Unmanned Aircraft Systems Program in the College of Engineering, Architecture and Technology on a conservation project to use silent drone technology to passively and safely collect hormone samples from wild dolphin breaths as they swim. This alternative to invasive handling will be a powerful tool for assessing the health and wellbeing of vulnerable dolphin and whale populations all over the world. Dr. Bruck has one new graduate student joining his lab in the Fall, Tabitha Gunnars.



Studio art graduate student turns Collection of Vertebrates into works of art

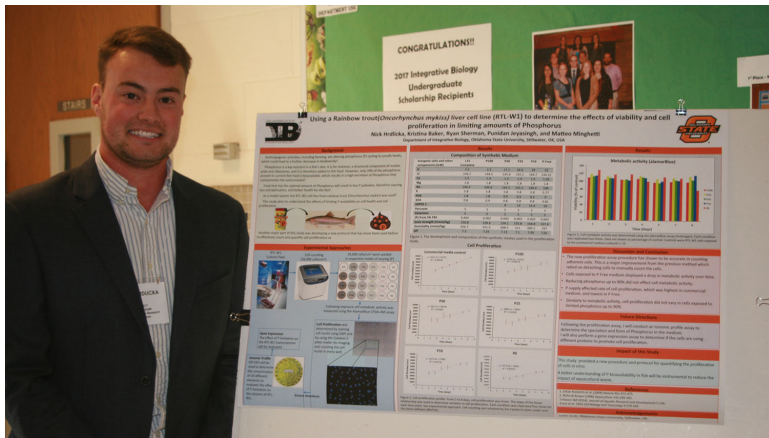
R. K. Hadzeriga, who graduated in December 2017 with a Bachelor's in studio art and a minor in entomology, transformed OSU's Gardiner Gallery into a museum look-alike hybrid for the senior capstone art show, *The Preservation We Sought*. Hadzeriga displayed a series of paintings and sketches that used animal specimens as the main subjects. In the paintings, preserved animal specimens were used in her own narrative about the end of the world, The series of oil paintings and watercolor sketches used both concepts of human fragility and the science of biological preservation to comment on the recent degradation of all life on Earth, despite growing knowledge about our planet from the collection and organization of biological specimens. Specimens that served as models and accompanied Hadzeriga's paintings during the capstone show were

from OSU's own Collection of Vertebrates and included: Indian elephant, rock hyrax, southern flying squirrel, red giant flying squirrel, Townsend's big-eared bat, chattering lorry, Aplomado falcon, Jackson's horned chameleon, leopard tree iguana, and slender glass lizard. Dr. Karen McBee, Curator of Vertebrates referred to this use of the collection as "the most exciting thing that happened to her in this vocation of caring for the collection." The show, which ran November 1st through the 21st, was unanimously referred to by those present as "the most diverse show in years." More of Hadzeriga's work can be seen at <https://drive.google.com/file/d/1Lq1K3XmSsBJoQxfjvdILoNdRfciUFQO/view>.



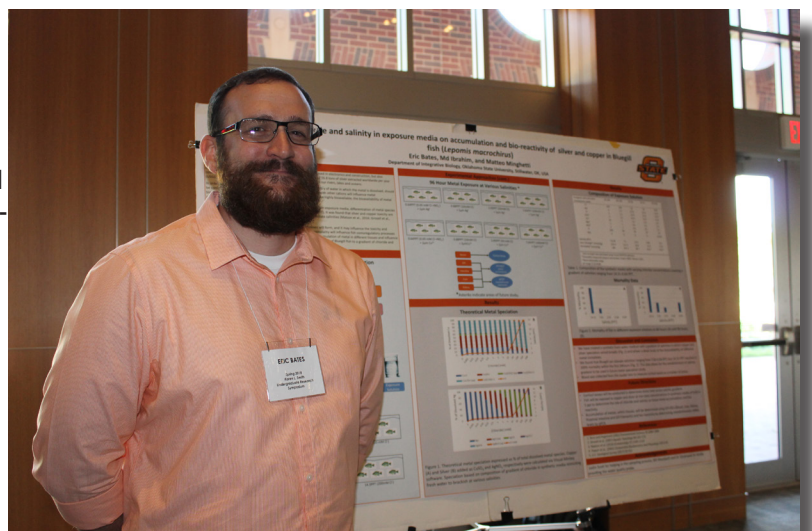
Karen L. Smith Undergraduate Research Symposium

On 8 December 2017 the Integrative Biology Department held the Fall Karen L. Smith Undergraduate Research Symposium and the Spring symposium was held 18 April 2018 in conjunction with the 2018 Integrative Biology Awards celebration. Karen, who passed away on 2 November 2012 was the senior academic counselor in the department. The symposium was established in November 2012 in recognition of Karen's tireless efforts to enhance the undergraduate experience - especially those in the Department of Integrative Biology. The symposium provides professional development opportunities for undergraduates. For the Fall 2017 symposium there were 6 poster presentations involving a total of 8 undergraduates (2 of the posters had 2 undergraduate authors) working in the Integrative Biology Department. Six faculty members and 2 graduate students worked as collaborators and mentors for these undergraduates. Eleven posters were presented during the Spring 2018 symposium and the 12 undergraduates involved were mentored by 9 faculty members and 8 graduate students. For both symposia, posters were evaluated by a group of faculty and graduate students and the highest ranking poster from each of the two symposia received the Karen L. Smith Undergraduate Research Excellence Award. This award includes \$250 and is made possible by the Karen L. Smith Undergraduate Research Symposium Fund. Congratulations go to Nick Hrdlicka (**below left**) and Eric Bates (**below right**), the Karen L. Smith Undergraduate Research Excellence Award winners for Fall 2017 and Spring 2018, respectively.



Left: Nick Hrdlicka, Fall 2017 Karen L. Smith Undergraduate Research Excellence Award winner, was mentored by Dr. Matteo Minghetti and completed a project entitled "Does limiting phosphorous affect the viability and proliferation of Rainbow Trout?"

Right: Eric Bates, Spring 2018 Karen L. Smith Undergraduate Research Excellence Award winner, was mentored by Dr. Matteo Minghetti and Ph.D. student Md Ibrahim on a project entitled "Role of chloride concentration in the exposure medium on the toxicity of silver and copper in Bluegill (*Lepomis macrochirus*).



2018 Annual Integrative Biology Awards Celebration

The 2018 Annual Integrative Biology Awards Celebration was held in Click Hall at the Conoco Phillips Alumni Center on 18 April 2018. The banquet was attended by some of our generous donors, award winners, department members, and their families. Award winners are listed below and on the following page.

Integrative Biology Department Undergraduate Student Awards:

- Dr. G. Michael Steelman Scholarship:* Jessyca Naegele
- Delta Dental of OK Pre-Dentistry Scholarship:* Abigail Grathwohl
- Dr. Raymond Dixon Scholarship:* Joshua Reyes
- Dr. Raymond Dixon Scholarship in Rural Health:* Abigail Wright
- McAlester Regional Health Center Externship:* Anna Smith
- Outstanding Zoology Senior:* Taylor Walton
- Outstanding Biological Science Senior:* Samantha Rice
- Outstanding Physiology Senior:* Austin Mefford
- Outstanding Junior:* Avery Melton
- Outstanding Sophomore:* Rachel Terry
- Bryan P. Glass Fellowship:* Khanh To



Left to right:
Austin Mefford, Khanh To, Anna Smith, Taylor Walton, Avery Melton, Jessyca Naegele, Rachel Terry, Abigail Grathwohl, Abigail Wright, Samantha Rice, Joshua Reyes



Left to right:
Teri Bachoffer, Educational Outreach Specialist for Delta Dental of Oklahoma and Abigail Grathwohl. Abigail was the first recipient of the Delta Dental of Oklahoma Pre-Dentistry Scholarship. This scholarship was established in 2016 by the Delta Dental of Oklahoma Oral Health Foundation and it allows an annual scholarship to be awarded to a sophomore or junior student with the career goal of entering dental school.

**Student Winners
2018 Annual Integrative Biology Awards**

Zoology Graduate Student Society Awards:

Best Lunchtime Seminar Presentation: Fall 2017 - Scott Goepfner, Ryan Koch, Ashley Love

Spring 2018 - Chris Goodchild

Margaret S. Ewing Outstanding Mentor Award: Dr. Andy Dzialowski

ZoGGS Travel Awards: Kelsey Brass, Ryan Koch, Ashley Love

ZoGGS Research Awards: Jeremy Kaplan, Angela Riley

M.S. Science Communication and Outreach: Ryan Koch

Ph.D. Science Communication and Outreach: Cody Barnes



Left to right: Ryan Koch, Patrick Lind, Justin Agan, Md Ibrahim, Bill Mausbach, Allison Hanna, Scott Goepfner, and Ryan Sherman.

Integrative Biology Department Graduate Student Awards:

Outstanding Integrative Biology Masters Student: Ryan Koch

Outstanding Integrative Biology Doctoral Student: Bill Mausbach

S. L. "Bud" Burks Memorial Graduate Research Award: Patrick Lind

Wilhm Graduate Student Travel Award:

Justin Agan & Md Ibrahim

Wilhm Teaching Assistant - Masters: Allison Hanna

Wilhm Teaching Assistant - Doctoral: Scott Goepfner

Waters Grant-in-Aid of Research: Ryan Sherman

Save the Date: The 2019 Annual Integrative Biology Awards Celebration will be held 24 April 2019.

Click Hall, Conoco Phillips Alumni Center

The Alumnidae

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| <input type="checkbox"/> Zoology Scholarship Fund (22-45500) | <input type="checkbox"/> Wilhm Graduate Student Travel Award (22-82350) |
| <input type="checkbox"/> Karen L. Smith Undergraduate Research Symposium Fund (22-98530) | <input type="checkbox"/> Other: _____ |
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