

TOX QUARTERLY

The Official Publication of UCR Mini-ETOX GSA



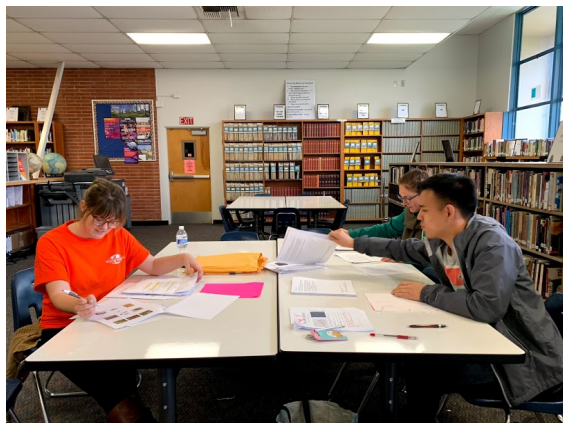
Tox Quarterly Newsletter Editors: My Hua, Victoria McGruer, and ETOX Mini-GSA Members

Content Provided by: Jin Chen, Sara Vliet, Madeline Vera, Aalekhya Reddam, and ETOX Mini-GSA Members

ETOX at Science Olympiad

by Jin Chen

On March 2nd, ETOX and ENSC graduate students (Sara Vliet, Marissa Giroux, Jin Chen, and Nathan Sy) participated in the Inland Empire Regional Science Olympiad Tournament. They designed written test and hands-on activity for student teams competing on water quality subject. Science Olympiad is a nationwide competition passionate to increase a student's interest in STEM fields through team competitions in events such as earth science, biology, chemistry, physics, and engineering. Teams are recognized with their outstanding achievement and top ones advance from Regional, State, and National levels.



Pictured left are Sara Vliet, Marissa Giroux and Nathan Sy grading tests and ranking scores.

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Dr. Russ Hille Distinguished Professor of Biochemistry Department & faculty member of the Environmental Toxicology Program.

UCR ETOX Faculty Spotlight: Dr. Russ Hille

by Madeline Vera

Dr. Russ Hille completed his undergraduate work in Chemistry at Texas Tech University, graduating with honors in 1974. He received his Ph.D. in Biochemistry from Rice University in 1979, working with John S. Olson. After postdoctoral work with Vincent Massey at the University of Michigan, he took a faculty position in the Department of Molecular and Cellular Biochemistry at the Ohio State University in 1985, where he became a Full Professor in 1995. He moved to UC Riverside in 2007 as a Chancellor's Professor, and is presently a Distinguished Professor of Biochemistry. He just recently joined the Environmental Toxicology faculty April of 2019.

We also had the opportunity to sit down for a Q&A Session with Dr. Hille:

Madeline: What inspired you to go into research?

- 1. Dr. Hille:** It's kind of hard to say. I never took an undergraduate laboratory that I enjoyed. But when I gained a little research experience in other labs, I enjoyed that much more. That is what lead me to go to graduate school. In graduate school, I had a ball. I had a terrific advisor who really instilled a team spirit. Everyone was on the same side, working toward the same goals.

Madeline: What surprised you most about life in academia?

- 2. Dr. Hille:** How much the Peter Principle is at play. You go to college, you go to class, you make good grades. Then, in graduate school, it's not the "book-learning" that's important. It's being able to do research. Then in a faculty position, a different set of skills, for which you are not trained at all, are required to succeed. At a research university, like UCR, the ability to prepare grant proposals that are successful is important. It's not so much as being great at one thing, as being adaptable. Increasingly, graduate programs are attuned to this. Many qualifying exams require preparing an original research proposal in the format of an NIH proposal. But that hasn't always been the case and I think that it's important to incorporate those elements into the training that a student receives while receiving a PhD.

Madeline: What do you predict will be the next major research breakout in your field?

- 3. Dr. Hille:** It's going to be the development of improved catalysts to perform transformations to address a variety of problems. We work with enzymes that interconvert formate and carbon dioxide. While these enzymes work physiologically to oxidize formate to CO₂, they do work in a reversible direction. We learned the reaction proceeds in formate oxidation by a hydride transfer mechanism. If the reverse is true for CO₂ reduction, then you don't want to use H₂ as the source of the reducing equivalence, as it takes energy to get to the reaction conditions. The hydride-driven reduction of CO₂ was the earliest mechanism of CO₂ fixation. This chemistry has been around in the active sites of enzymes for a long time. While enzymes may not be adaptable to industrial processes, synthetic catalysts may. I think it is the development of these improved catalysts that are going to be required in the near term.

Madeline: What piece of advice do you wish you were given when you were a graduate student?

- 4. Dr. Hille:** Again, I had a great time, with a terrific advisor. There is nothing that I regret not having been told. I understood at the time that getting an academic position was kind of a long shot, but something to aspire to. I wasn't discouraged at any point in my training. So, I guess I'll say nothing.

Madeline: What do you do outside of lab for fun?

- 5. Dr. Hille:** I enjoy cooking, a lot. My wife is very happy with this development. I enjoy being outside, bicycling, things like that. Sometimes I just like sitting out on the back porch and enjoy the evening.

Environmental Toxicology Graduate Student News

Compiled by Mini-ENTX GSA Members

- **Student Spotlight: CM Sabbir Ahmed**
- More than 50 graduate students participated in 2019 Grad Slam Competition at UC Riverside. Sabbir competed as a finalist among 8 other graduate students in Grad Slam 2019 at UC Riverside. He was selected for the Audience Choice award and won \$1000 monetary prize. Grad Slam is an annual UC-wide public speaking competition in which graduate students describe their research and its value in 3 minutes. (More details at: <https://gsrc.ucr.edu/grad-slam-2019/>).



Sara and Seth Complete Science to Policy Certificate Program



UCR has initiated a Science to Policy certificate program to train graduate students to better explain their research to the public and to prepare them to advise those who make policy. Sara Vliet and Seth Fernandez, two ETOX students, took the class during Winter quarter 2019, and received certificates in a ceremony that took place on April 2nd.



Dissertation Defenses

Upcoming Defense

Marissa Giroux will defend on **May 9th, 2019 at 11AM in Orbach 240.**

Sara Vliet will defend on **May 29th, 2019 at 9AM in 301 Science Labs.**

Dissertation Title: Leveraging Zebrafish to Identify Chemicals Disrupting Early Embryonic Development

Douglas Wolff will defend on **June 17th, 2019.** Time&Location: TBA

GSA General Announcements

- Meet and Greet Lunch with the deans at grad division through Hillary Jenks for May 3rd (Friday) from 1-3pm.
- Class times are rolling back 10 mins, they will start on the hour now
- May 13th: Life in Liberal Arts College, panel of professors who work in liberal arts schools
- Registration for teaching development day is now open, there are two sessions per year

Other ETOX Program-Related Announcements

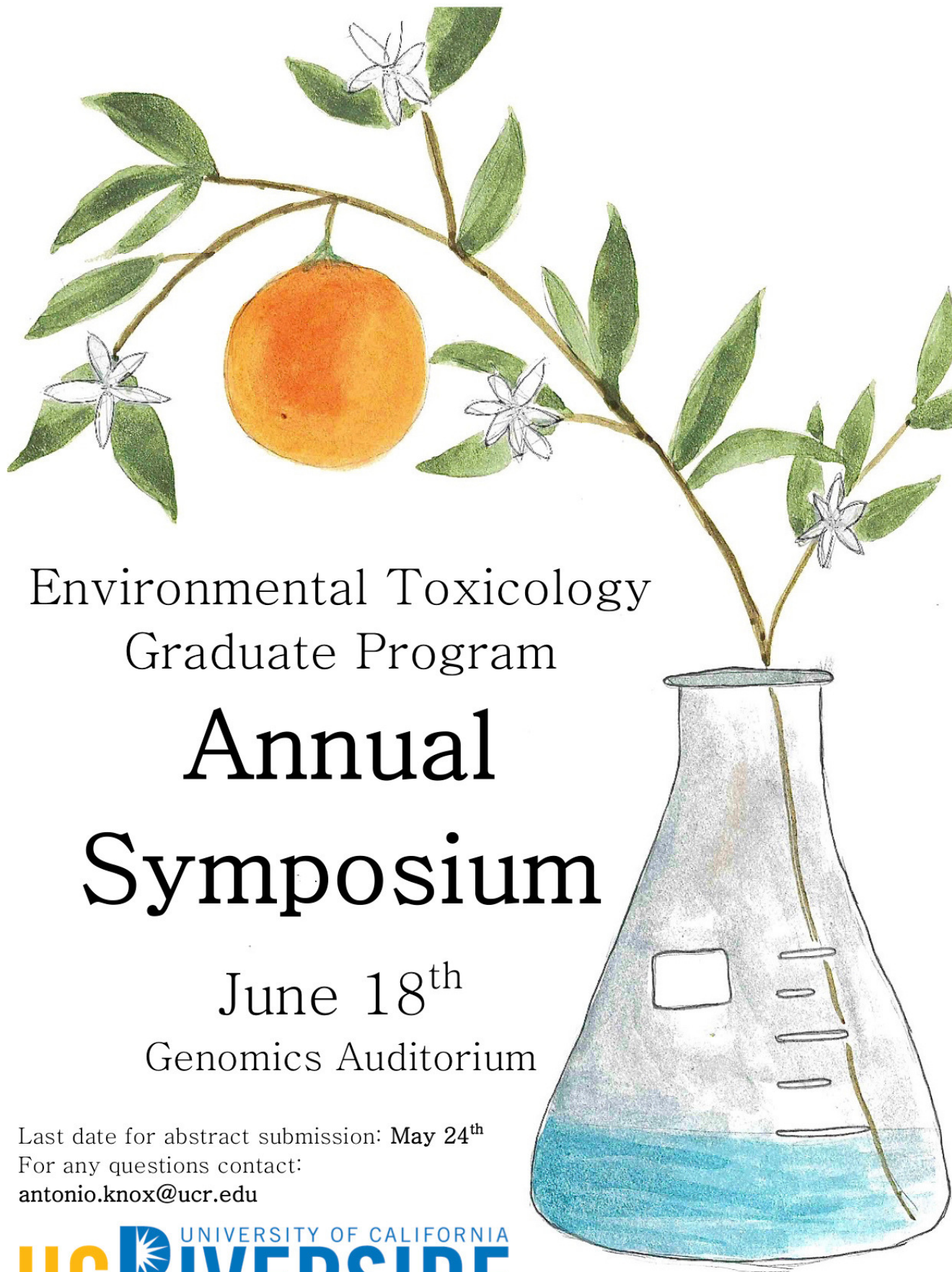
- **Scott Coffin** - will be walking at commencement on Saturday, June 1st at 9:00 a.m. Scott now works as an Environmental Scientist at the State Water Resources Control Board, where he is the lead for the Constituents of Emerging Concern Initiative for the state.

JOIN US FOR A **BAR-B-Q**



May 23rd
4:30pm
Picnic Hill

Food will be provided by
mini-GSA, BYOB
There will be vegetarian,
vegan and gluten free options
Families and significant others
are welcome



Environmental Toxicology
Graduate Program

Annual Symposium

June 18th
Genomics Auditorium

Last date for abstract submission: May 24th
For any questions contact:
antonio.knox@ucr.edu

ENTX Program Student and Faculty Publications

1. Article Title: Characterization of electrophilicity and oxidative potential of atmospheric carbonyls

Journal: Environmental Science: Processes & Impacts

Authors: **Jin Y. Chen**, Huanhuan Jiang, Stacy Jy Chen, Cody Cullen, **C. M. Sabbir Ahmed** and **Ying-Hsuan Lin**

2. Article Title: Defluorination of Per- and Polyfluoroalkyl Substances (PFASs) with Hydrated Electrons: Structural Dependence and Implications to PFAS Remediation and Management

Journal: Environmental Science & Technology

Authors: Michael J. Bentel, Yaochun Yu, Lihua Xu, Zhong Li, Bryan M. Wong, Yujie Men, and **Jinyong Liu**

3. Article Title: Fish and Seabird Gut Conditions Enhance Desorption of Estrogenic Chemicals from Commonly-Ingested Plastic Items

Journal: Environmental Science & Technology

Authors: **Scott Coffin**, Guo-Yong Huang, Ilkeun Lee, and **Daniel Schlenk**

4. Article Title: Simulated digestion of polystyrene foam enhances desorption of diethylhexyl phthalate (DEHP) and In vitro estrogenic activity in a size-dependent manner

Journal: Environmental Pollution

Authors: **Scott Coffin**, Ilkeun Lee, **Jay Gan**, **Daniel Schlenk**

5. Article Title: Comparisons of analytical chemistry and biological activities of extracts from North Pacific gyre plastics with UV-treated and untreated plastics using in vitro and in vivo models

Journal: Environment International

Authors: **Scott Coffin**, **Stacia Dudley**, Allison Taylor, **Douglas Wolf**, Jie Wang, Ilkeun Lee, **Daniel Schlenk**

6. Article Title: Negligible effects of microplastics on animal fitness and HOC bioaccumulation in earthworm *Eisenia fetida* in soil

Journal: Environmental Pollution

Authors: Jie Wang, **Scott Coffin**, Chengliang Sun, **Daniel Schlenk**, **Jay Gan**

7. Article Title: Deepwater Horizon crude oil exposure alters cholesterol biosynthesis with implications for developmental cardiotoxicity in larval mahi-mahi (*Coryphaena hippurus*)

Journal: Comparative Biochemistry and Physiology Part C: Toxicology & Pharmacology

Authors: **Victoria McGruer**, Christina Pasparakis, Martin Grosell, John D. Stieglitz, Daniel D. Benetti, Justin B. Greer, **Daniel Schlenk**

Have any news for our Fall 2019 Edition? Please email My (Crystal) Hua (mhua002@ucr.edu) or Victoria McGruer (vmcgr001@ucr.edu) and share any ENTX-related news/events.