Training Goal

To produce graduates from the various disciplines participating in our SRP who are versed in multi-disciplinary approaches needed to address continuing and emerging complex environmental problems in the 21st century.

Colloquium - Key Mechanism for Interacting with Trainees

- Monthly Colloquium is mandatory for all Trainees, Pis, co-Pis
- Allows us to make students aware of opportunities
- Colloquium evolves to keep it fresh
- Feedback drives change

Engagement ↔ Participation ↔ Feedback
Trainee Requirements

**Mandatory**
1. Participation in year-long Colloquium on Environmental Health and Sciences
2. Participation in one (or more) CE/RT activity
3. Participation in an inter or intra-University Science fair or meeting
4. Submission of an annual progress report and evaluation

**Encouraged**
1. Take courses outside discipline
2. Include Professors outside discipline on graduate committee
3. Attend seminars/workshops outside discipline
Students have:

Developed informational pamphlets

Helped “train the trainers”

Trainee Pablo Sanchez Soria discussing toxicology basics with a Promotora group

Fei Zhao: “I thought this was so far the best experience I have had after getting into the toxicology field”.

Trainee Corin Hammond

Trainees Lucia Rodriguez-Freire (top) and Juliana Gil (bottom) helping with a “hands on” activity.
Students:

Attend CAB and other community meetings

Results - CE/RT Activity

New for 2012 – interacting with local High Schools

Focus is on attracting students into STEM
Results - Meetings

Students:

Regularly win awards/scholarships

Linnea Herbertson – Great Lakes National Scholarship, 2012
Robert Root – NIH Toxicology Training Grant Fellowship, 2012
Juliana Gil – UA Earth Week, 1st place poster, 2012
Corin Hammond – UA Earth Week, 1st place oral presentation, 2012
Janae Csavina – Australian Endeavour Research Fellowship, 2011
Alexis Valentin Vargas – ASM Robert Watkins Graduate Research Fellowship, 2011
Corin Hammond – Annual SRP meeting 1st place poster award, 2011
Monica Ramirez – Wetterhahn award, 2011
Monica Ramirez – NASA Space Grant Fellowship, 2010, 2011
Alicia Bolt – Society for Toxicology Annual Meeting, 1st place research award, 2011
Lucia Rodriguez-Freire Annual SRP meeting 3rd place poster award, 2010
Monica Ramirez – ORD EPA Grant, 2010
Alexis Valentin Vargas – Sloane Foundation Fellowship, 2009
Janae Csavina’s story

- Attended SRP sponsored Pacific Rim Conference in Korea
- Met Mark Taylor, McQuarie Univ., Australia
- Awarded grant from Australian Endeavour Research Fellowship Program
- Graduated August 2012
- Now working at NEON (National Ecological Observatory Network)

Janae studied particulates emitted from the Mount Isa copper and lead smelter in Queensland, Australia.

Janae examines the equipment set up to collect and measure particulate emissions.

Janae on the mine tailings at Mount Isa.

Noteworthy outcome: An international collaboration has developed between UA and Macquarie University with three joint publications coming. Mark Taylor will attend the UA SRP-sponsored Dust Conference planned for May 2013.
Monica Ramirez-Andreotta’s story

- Joined UA SRP 2005 as RTC coordinator
- Part-time grad student 2008, full-time 2010
- Interest in Environmental Justice
- Developed “Gardenroots” – a blend of bench research and citizen science

Self-funded entire project through a combination of EPA grant, Sloane Fellowship, UA WSP Fellowship, UA NASA Space Grant, SRP Training Core

Will graduate Dec 2012
Lessons our Training Core has Taught Us

• Keep things fresh

• Students love learning about how other disciplines relate to them

• Student response to CE/RT activities is off the charts

• Students love to step up to challenges

Thanks!
Seminar Series
Symposia
Workshops
Undergraduate Research Training
Summer Research Placements
Graduate Training
Postdoctoral Mentorship
Junior Faculty Mentorship
Spring 2011

Jan 14 Ralph Cooper, Ph.D. US-EPA
The Many Faces of the Chlorotriazine Herbicide Atrazine

Jan 21 Paul Foster, Ph.D., NIEHS
Endocrine disruption of rat reproductive development by phthalates: implications for human health cumulative risk assessment

Jan 28 Edward D. Levin, Ph.D., Duke University
Developmental neurotoxicity of Organophosphate pesticides in rats and zebrafish

Feb 4 Wayne Thomann, Ph.D., Duke University
Chemical and Biological Contaminants in the Indoor Environment

Feb 11 Douglas Bell, Ph.D., NIEHS
Genetics of oxidative stress

Feb 18 Julia F. Storm, MSPH, North Carolina State University
Reaching Practitioners from MDs to Farm workers: Communicating Agricultural Health and Safety Risks

Feb 25 Rebecca Fry, Ph.D., UNC
The two faces of arsenic: cancer causing and cancer treating
Spring 2011 (Continued)

Mar 4 Jean Harry, Ph.D., NIEHS
Neuronal/glial interactions and inflammation: possible targets for neurotoxicity, neuroprotection, and therapeutic opportunities

Mar 18 John Rogers, Ph.D., US-EPA
Intrauterine programming of adult disease by maternal undernutrition or chemical exposure

Mar 25 Spring Symposium: The Social Context of Environmental Exposures in Children

Apr 1 Donald McDonnell, Ph.D., Duke University
Incorporating our evolving understanding of nuclear receptor action into mechanism-based screens for endocrine disrupters

Apr 8 Alicia Timme-Laragy, Ph.D., Woods Hole Oceanographic Institute
Nrf2b: a novel paralog of the antioxidant response element transcription factor Nrf2 in zebrafish

Apr 15 Lindsey Van Tiem, Duke University
Molecular mechanisms of polycyclic aromatic hydrocarbon-induced teratogenesis in zebrafish (Danio rerio)

Apr 22 Charles Rice, Ph.D., Clemson University
Immune function in Atlantic killifish, Fundulus heteroclitus, adapted to environmental contaminants
Fall 2011

Sept. 2 Chris Newland, Ph.D., Auburn University
An ounce of prevention can test a hypothesis: Dietary nutrients, calcium channels, and protection against methylmercury’s neurotoxicity

Sept. 9 Paul Watkins, Ph.D., Hamner Institutes for Health
Idiosyncratic hepatotoxicity

Sept. 16 Toxicogenomics Symposium UNC

Sept. 23 Craig Butt, Ph.D., Duke University
Investigating the disruption of thyroid hormones by halogenated organic compounds using in vitro techniques

Sept. 30 Dave Volz, Ph.D., University of South Carolina
Aberrant ligand-induced activation of G-protein-coupled estrogen receptor 1 (GPER) results in developmental malformations during vertebrate embryogenesis

Oct. 7 Helen Hsu-Kim, Ph.D., Duke University
Nanoscale metal-organic matter interactions: Implications for mercury bioavailability in contaminated sediments

Oct. 14 Joel Meyer, Duke University
Fate and effects of persistent mitochondrial DNA damage
Oct. 21 Jerry Yen, Duke University
OP effects on developing zebrafish nervous system

Oct. 28 Steve Diamond, US-EPA Duluth, CEINT co-sponsor
The role of sunlight in assessing environmental risk of nanoscale titania

Nov. 4 Fall Symposium, Discovering the Vulnerable Mechanisms Causing Persistent Functional Impairment with Developmental Toxicology

Nov. 11 David DeMarini Ph.D., US-EPA RTP
Chlorinated chromosomes: Swimming and your genes

Nov. 18 Dennis Lemly, Ph.D., Wake Forest/US Forest Service
The myth of clean coal: A fish and wildlife perspective

Dec. 2 Autumn Bernal, Duke University
The effects of low dose radiation exposure on the epigenome of the avy mouse
Spring 2012

Jan 13 David Armstrong, Ph.D., National Institute of Environmental Health Sciences
Endocrine disruption of synaptic plasticity in the postnatal mouse hippocampus

Jan 20 Gregory J Cole, Ph.D., North Carolina Central University
Mechanisms of ethanol-induced CNS abnormalities in zebrafish: evidence for disrupted extracellular matrix function

Jan 27 Maxwell Leung, Duke University ITEHP Doctoral Candidate
Later-life effects of mitochondrial DNA damage during development in the whole organism model Caenorhabditis elegans

Feb 3 Kevin Crofton, Ph.D., US-Environmental Protection Agency
The role of thyroid hormones in neurodevelopment: using mode-of-action pathways to focus research strategies

Feb 10 Marion Ehrich, Ph.D., Virginia Tech University
Fullerenes for ameliorating organophosphorus threats

Feb 17 Richard L. Auten, M.D., Duke University
Air Pollution Exposure in Pregnancy Effects on Respiratory Function in Offspring: Innate Immunity as Gateway

Feb 24 Kia Walcott, Duke University ITEHP Doctoral Candidate
An *in vivo*, tissue-specific RNAi screen for ion channels contributing to nociception in *Drosophila*
Mar 2 Kent Pinkerton, Ph.D., University of California-Davis
Nanomaterials from children's health to chronic obstructive pulmonary disease
103 Byran Research Building, 11:30 AM-1:00 PM

Mar 16 Rosalind Coleman, M.D., University of North Carolina
Acyl-CoAs and lipid partitioning

Mar 23 Fernando Galvez, Ph.D., Louisiana State University
The physiological and genomic effects of the Deepwater Horizon oil spill on resident killifish

Mar 30 Kyle Erwin, Duke University ITEHP Doctoral Candidate
Insights into PCB126-mediated developmental cardiotoxicity in zebrafish

Apr 6 Amanda Bass, Duke University ITEHP Doctoral Candidate
The Role of mitochondrial dynamics and autophagy in removal of persistent mitochondrial DNA damage

April 13 Pam Noyes, Duke University ITEHP Doctoral Candidate
Polybrominated Diphenyl Ether (PBDE) Flame Retardants in Fathead Minnows: Metabolism and Disrupted Thyroid Regulation at Early and Adult Life Stages

Apr 20 Spring Symposium: Causes and Consequences Connecting Human and Environmental Health
Fall 2012

Sept 7 Tso-Pang Yao, Ph.D., Duke University
Connecting mitochondrial toxin to neurodegeneration

Sept 14 Christie M Sayes, PhD. Research Triangle Institute International
Contemporary issues in nanotoxicology: Continuing to relate material properties to biological responses

Sept 21 Charlotte Clark, Ph.D. Duke University
Research Translation in Toxicology and Environmental Health

Sept 28 Andrew Arrant, Duke University ITEHP
Immaturity of the serotonergic system mediates lack of drug-induced behavioral inhibition in adolescents

Oct 5 Ashley Parks, Duke University ITEHP
Bioavailability and effects of single-walled carbon nanotubes in a benthic estuarine system

Oct 12 Amy Ringwood, Ph.D., University of North Carolina-Charlotte
Bivalve Biomarkers - Models for Pollutant and Nanoparticle Bioreactivity
Oct 19 Kristie Willet, Ph.D., University of Mississippi
  Reproductive, Developmental and Epigenetic Effects of Benzo(a)pyrene in Fundulus heteroclitus and Danio rerio

Oct 21-24 **Superfund Basic Research Program Conference**

Nov 2 Cavin Ward-Caviness, Duke University
  Gene-Environment Interactions in Chronic Cardiovascular Diseases

Nov 9 Scott Ballinger, Ph.D., University of Alabama-Birmingham
  Mitochondrial fitness as a susceptibility factor for cardiovascular disease

Nov 16 Lynn Singer, Ph.D., Case Western Reserve University
  MDMA and cocaine: challenges of understanding prenatal exposure effects

Nov 30 Nancy Denslow, Ph.D., University of Florida
  Molecular approaches to understanding persistent organochlorine pesticides at Lake Apopka, Florida
Tso-Pang Yao, Ph.D., Duke University  
Email: tsopang.yao@duke.edu  
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Ashley Parks, Duke University  
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Amy Ringwood, Ph.D. UNC-Charlotte  
Email: AHRingwo@uncc.edu  
Phone: 704-687-8501  
Host: Lee Ferguson

Kristie Willet, Ph.D., University of Mississippi  
Email: kwillett@olemiss.edu  
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Cavin Ward-Caviness, Duke University  
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Scott Ballinger, Ph.D. Univ of Alabama-Birmingham  
Email: sballing@uab.edu  
Phone: 205-934-4621  
Host: John Hollingsworth

Lynn T. Singer, Ph.D., Case Western Reserve  
Email: Lynn.Singer@case.edu  
Phone: 216-368-1610

Nancy Denslow, Ph.D., University of Florida  
Email: ndenslow@ufl.edu  
Phone: 352-294-4642  
Host: Rich Di Giulio
Future speaker possibilities

Keith Tierney, Ph.D., University of Alberta  
Email: ktierney@ualberta.ca  
Phone: 780-492-5339 Lab phone: 780-492-1286  
Suggested by Rich DiGuilio

Lori Snyder Bennear, Ph.D., Duke University  
Email: lori.bennear@duke.edu  
Phone: 919-613-8083

Arnaud Van Wettere DVM, PhD, North Carolina State University  
Email: arnaud_vanwettere@ncsu.edu  
Phone: 919-515-7410  
suggested by David Hinton

Scott Mabury, Ph.D., University of Toronto  
Email: smabury@chem.utoronto.ca  
Phone: 416-978-1780  
Suggested by Heather Stapleton

Sherry Ferguson, Ph.D., National Center for Toxicological Research  
Email: Sherry.Ferguson@fda.hhs.gov  
Phone: 870-543-7589  
Suggested by Ed Levin
Symposia
Semi-Annual Symposia

Spring 2004  Obesity: Developmental Origins and Environmental Influences
Fall 2004   Comparative Toxicogenomics
Spring 2005  Toxic Risks with Aging
Fall 2005   Epigenetic Imprinting and Disease Susceptibility
Spring 2006  Environmental Carcinogenesis (Co-sponsored)
Fall 2006   Toxicant-Induced Alterations of Sexual Differentiation
Spring 2007  Developmental Neurobehavioral Disabilities and Toxic Exposure
Fall 2007   Developmental High Throughput Screening with Biologic Meaning: Going Somewhere Fast
Spring 2008  Aquatic Models of Human Disease (Co-sponsored)
Fall 2008   The Toxico-Legal Interface: Use of Toxicological Science in Regulation and Litigation
Spring 2009  Managing Toxic Risks for Global Health
Fall 2009   Environmentally Responsible Commercialization of Nanotechnology
Spring 2010  Mountaintop Coal Mining: Human Health and Ecological Concerns
Fall 2010  Cancer and the Environment: From Molecules to Populations
Spring 2011  The Social Context of Environmental Exposures in Children
Fall 2011   Discovering the Vulnerable Mechanisms Causing Persistent Functional Impairment with Developmental Toxicology
Spring 2012  Causes and Consequences Connecting Human and Environmental Health
Spring 2012 Symposium

Duke Integrated Toxicology and Environmental Health Program
Duke University Superfund Research Center

Causes and Consequences Connecting Environmental and Human Health

April 20, 2012, Washington Duke Conference Center

8:30-9:00  Welcome and Overview
Richard Di Giulio, Ph.D., Duke University, Durham, NC

9:00-9:45  William Schlesinger, Ph.D., Cary Institute of Ecosystem Studies
Climate Change versus Human and Ecosystem Health

9:45-10:15 Joel Meyer, Ph.D., Duke University, Durham, NC
Global Environmental Health: Cook Stoves

10:15-10:30 Break
10:30 – 11:00  Michael Hendryx, Ph.D., University of West Virginia, Morgantown
Human Health and Ecological Impacts of Mountaintop Coal Mining

11:00 – 11:45  Richardson Peterson, Ph.D., University of Wisconsin, Madison WI
Investigative Toxicology Connecting Environmental and Human
Health: Dioxin-Induced Heart Malformation in Zebrafish

11:45 – 12:15  Robin Whyatt, Columbia University, Dr.P.H., New York, NY
Phthalate Exposures, Child Mental, Motor and Behavioral Development
and
Respiratory Health

12:15-1:15  Lunch

1:15 – 1:45  Patricia Fair, Ph.D., NOAA, Charleston, SC
Environmental Exposures and Marine Mammal Health

1:45 – 2:30  John McLachlan, Ph.D., Tulane University, New Orleans, LA
Gene-Environment Interactions

2:30-3:00  Andrew Kane, Ph.D., University of Florida, Gainesville
Psychological Impacts of Hurricane Katrina

3:00  Closing remarks
Edward Levin, Ph.D., Duke University, Durham, NC
Workshops

Writing
Research Translation
Methods
Undergraduate Research Training
Summer Research Placements
Graduate Training
Postdoctoral Mentorship
Junior Faculty Mentorship
Interactions with other programs